The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

VOL. XVI. No. 401 MARCH 5, 1927 Prepaid Annual Subscription: United Kingdom, £1.1.0; Abroad, £1.6.0.

Contents

NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

The prepaid subscription to THE CHEMICAL AGE *is 21s. per annum for the United Kingdom, and 26s. abroad. Cheques, Money Orders and Postal Orders should be made payable to Benn Brothers, Ltd.*

Editorial and General Offices: Bouverie House, 154, Fleet Street, London, E.C.4.

Telegrams: "Allangas, Fleet, London" Telephone: City 0244

Dr. Luigi Casale

WE are glad to publish the appreciation—at once informed, critical, and kindly—of the late Dr. Luigi Casale, the distinguished Italian chemist, which Dr. J. F. Crowley, who had been closely associated with him in recent years, contributes to this issue. Dr. Casale was only in his forty-fifth year, but he had won a high and honourable place among the chemists of the world, especially in the field of synthetic ammonia, and he was already at work on other branches of industrial research, including the synthesis of methyl alcohol and of urea. "In few men," as Dr. Crowley truly says, "has it been given to achieve so much in a life so sadly cut short." Dr. Casale's devotion to the science in which he found his life work was well illustrated at the conference of his associates of the Ammonia Casale Co. which met at his bedside a few days before the end. "I have much to do," he told them; "my work is not yet achieved; it is necessary that I should have time to finish it." As his colleague M. Bouchayer tells us, there was a hope that the soul would save the body; but, unhappily, it was not to be fulfilled.

Deeply to be mourned as Dr. Casale's early death is, it is satisfactory to learn that the technical developments of his synthetic ammonia process had been already completed. Ranking with Haber and Claude as a scientific investigator in this field, Dr. Casale's process has already attained great commercial proportions. The total capacity of the plants completed or in course of construction throughout the world on his system to-day is over 700 metric tons of synthetic ammonia daily, or an annual output capacity exceeding 250,000 tons of ammonia, equivalent to 1,000,000 tons of ammonium sulphate per annum. In addition, it is expected that the first industrial plants based on his work on methyl alcohol and urea will shortly be in operation. These results alone would ensure a tribute from British chemists to the memory of a colleague of such attainments and promise. But a more intimate note is brought into the matter by two things—his brave, but unavailing, struggle against illness, and his wish finally to settle down in this country, for which he had a strong affection.

Institute Policy and Problems

PROFESSOR G. G. HENDERSON concludes his three-years term of office as President of the Institute of Chemistry with a review of the work that is well worth noting. Although the roll of membership has increased by 242 during the year to a total of 5,200, some abatement is noted in the enthusiasm for chemistry as a career that prevailed immediately after the war. Entry to the roll of the Institute is not regulated by the principle of supply and demand—its standards are constant; but the Institute frankly reminds those who feel that they have a bent for the science that it does not necessarily lead to fortune, that it calls for hard work and sacrifices, and that, since the supply of chemists exceeds the demand, more than average ability is required for even moderate success. Industry, Professor Henderson says quite frankly, is not sufficiently absorbing the scientific talent supplied by the universities, and many graduates have to turn to callings which have no direct relation to their technical education.

In a reference to the important question of registration, Professor Henderson indicates the possibility of an advance in policy. While the Institute has done what is reasonably possible to recognise all with claims to be considered trained and competent chemists, many may perhaps feel that the time has come to prepare some form of wider register of chemists of various grades, possibly with the ultimate object of securing powers for the restriction of practice to those who are duly qualified. Such restriction of practice is obviously a long way off at present, and there would be many difficulties in the way; but there is nothing really novel in the principle, which is the basis equally of professional organisations like the

Medical or the Law Society, who restrict practice to accredited members, and of trade unions, who aim at restricting work to accredited craftsmen. Such an object is not likely in the case of chemists to come very soon within what is known as "practical politics"; but the fact that official opinion within the Institute is turning towards it as an ultimate aim is worth noting. It is satisfactory to hear that the Institute membership steadily grows, and as the jubilee of its foundation is to be celebrated in October, this year, under the presidency of Professor Smithells, should be one of the most memorable in its history.

The Position of Scientific Workers

THE general appeal which has been issued by the National Union of Scientific Workers to "every professionally qualified scientist and technician in the country," is a reasonably conceived document and is backed by a strong group of most distinguished scientists and industrial leaders. The breadth of the appeal, though admirable from one point of view, may, indeed, prove a weakness from another, for an interest may be made so general as to fail in making a sufficiently specific appeal to a sufficiently large number of individuals. The Union, which was formed in 1918 to promote the cause of science in national life and to improve the status of the scientific worker, is entitled to claim a number of achievements to its credit, but admittedly it has not succeeded in becoming what its supporters had hoped—an organisation fully representative of the general body of qualified scientific workers. Its membership is still a little below 1,000, although the number of persons qualified for admission is estimated at nearly 10,000. The signatories believe that the establishment of such a representative body would be of the greatest importance to science and to those who have made science their profession; and their appeal is now being circulated among all qualified scientific workers, in order that the latter's attitude may be definitely ascertained.

The body now contemplated is to be entirely non-political, but with definite economic and cultural aims —namely, to improve the status of men and women of science, and to aid the cause, both nationally and internationally, of science itself, both pure and applied. The Union has already been successful in bringing about improvements in the conditions of service of groups of scientific workers in government and private employ. It has been represented on, or given evidence before, various committees set up by Government, when the interests of scientific workers have been involved. On several occasions it has intervened successfully to prevent the shutting down or curtailment of the activities of research institutions supported by public funds. It is now suggested that these activities should be extended, but the name, the precise function, the organisation, and the rate of subscription will be entirely within the control of the members. One misconception that seems to exist is plainly removed. Some non-members still ask whether to join the National Union of Scientific Workers would not mean being called out on strike in certain situations. "The strike," the appeal states, "is not a possible weapon for scientific workers and the Union has never imagined the possibility of its employment." The present rate of subscription to the Union is 30s. per annum; an organisation is now aimed at that can be worked with a membership rate of approximately 10s.

The appeal is principally directed to finding out what scientists and technicians generally think of the idea, and the collective answer should be interesting. Points that will no doubt be considered in framing the replies are: Will the proposed Union be sufficiently definite in its aims to conflict with or overlap the aims of existing organisations? What are the specific benefits it would secure to members not already provided? The appeal at least should prove an interesting referendum.

Paint and Colour Research

THE brochure just issued by the Research Association of British Paint, Colour, and Varnish Manufacturers is not only a good form of appeal but contains thoroughly sound views on the whole question of industrial research. Although the Association has only been in existence a few months, more than a hundred problems in paint, varnish, and colour technology have already been brought to its notice, most of them, we are told, fundamental in type, wide in scope, and of great importance. The elucidation of even one would be of value to the industry. Generally, the problems submitted, which may be taken as arising out of practical experience, cover a very wide field. They include questions about the properties of drying oils—not only linseed and china wood oils, but newer oils like perilla; the effect of added materials whether as impurities or not, and the effect on the drying and durability of the film made therefrom; the study of films, whether made from paint, oil varnish, or cellulose lacquer; the changes that take place in paint and varnish in storage and during drying, in other words, the "diseases" of paint; testing devices and the standardisation of tests for consistency, durability, fading, oil absorption, and the like. Already out of the suggestions received, twenty-three specific problems have been selected as suitable for investigation.

The general case for such research is based on the sound argument that increased efficiency on the part of some firms in an industry stimulates and tends to raise the efficiency of the rest of the firms in that industry, and further that the raising of the standard of efficiency in one industry reacts beneficially on other industries. The individual manufacturer, therefore, who isolates himself from the movement does so at grave risk to himself. Fortunately a sufficient number of firms in the paint and colour industry have so far recognised this as to guarantee the minimum sum necessary. But the minimum of anything is rarely enough. Now that the Association is in being, other firms may come in; some may prefer to wait and see if something comes out before they put anything in. This, it is stated, "is not a happy outlook, for in this matter, as in most things, seed-time comes before harvest." "If," says the appeal quite plainly, "every manufacturer in the paint, colour, and varnish industry would subscribe half the price of an office boy, the finance of the scheme would be on a sound basis."

National Finance

THE first item on the agenda of every meeting of every trade association for the next few weeks ought to be the Budget and national finance. We are now within four or five weeks of the end of the financial year and it is disconcerting to notice how little attention is being given to the subject of public economy. Ever since Budgets began, the early weeks of spring have always witnessed an outcry on the part of taxpayers clamouring for reduction of taxation, and surely no such outcry has ever had a fraction of the justification which exists to-day. Yet it would be true to say that there was more agitation in the country over the increase of the Income Tax from 4d. to 6d. than there appears to be to-day over the addition of £100,000,000 to the Budget total. If the trading classes are apathetic on this question, it is hard to blame the electorate generally for showing a lack of interest in it.

Modern trade associations have a special responsibility in this matter, for while they stream in deputations to Whitehall they seldom have very much to say on the more important though more abstract question of public economy as a whole. The King's Speech of December, 1924, contained these words: "The present heavy burdens of the taxpayer are a hindrance to the revival of enterprise and employment. Economy in every sphere is imperative if we are to regain our industrial and commercial prosperity." That was in December, 1924, after a Budget in the same year introduced by the Labour Chancellor, Mr. Snowden, and amounting to £794,000,000, Two years later, the Conservative hopes of economy had materialised in a Budget of £824,000,000, and the one which Mr. Churchill will introduce in a few weeks' time seems likely to bring us nearer to the highest of the war-time figures and to put off still further the time when we may hope for reasonable public expenditure.

There can be no chance for British trade while public finance is in its present position. Our National Debt is £168 per head of population against £34 in the United States of America. Our taxation, leaving out of account local burdens, is £15 a head against £9 in Australia, £6 in America, and £5 in Germany. Whether this matter is approached from the point of view of the trader or the socialist or the imperialist, it is of equal importance. We are on the edge of our financial capacity and have no money to spare, no margin to use, whether for trade development or social services or new wars, so that all parties have a vital interest in getting the Budget back to reasonable proportions. If all the trade associations of the country would pass resolutions on the matter and get the trade and the local M.P.'s to work on the question, a useful influence would be set to work in Government departments now that Budget figures are under consideration.

Woollen and Worsted Research

FOR a variety of reasons, the work of the British Research Association for the Woollen and Worsted Industries is not very well known to the scientific public. The exhibits of the work of the Association, which are now on view at the Science Museum, London, show that the progress which has been made is really remarkable, both on the scientific and on the industrial sides. As regards the former, fundamental work on the nature of the sulphur content of wool is being prosecuted, and the mass of data collected should lead in the near future to some interesting conclusions. Another very important line of research has been initiated by the development of a method whereby wool fibres may be scraped, and the examination of the scrapings obtained at different depths will add greatly to our knowledge of the nature of wool. The effect of alkali on wool has long been a troublesome problem, but the Association seems to be well on the way towards a solution. By a remarkably ingenious method, in which the wool is dyed with an indicator (such as bromthymol blue) the behaviour of any alkali present can easily be observed; and the use of this device has already shown that in bobbins of yarn drying after conditioning the alkali travels from the centre to the outside of the reel. Obviously this method of observation should be of great commercial importance, and some manufacturers are already incorporating a short stretch of indicator-dyed yarn on the end of each piece, thereby providing themselves with a simple means of observing the beheaviour of the material. Lack of space renders a complete account of the exhibits impossible, but it may be noted that the Association is continuing its work on the action of light on dyed fabrics, the effect of the humidity factor being carefully observed, while the development of new material for sheep-marking (which may obviate the use of tar and its frequent harmful after-effects) should have immediate economic results of importance. The woollen and worsted industry is entitled to feel some pride in its research organisation, which is carrying out in an ideal manner the purpose for which it was founded.

The Calendar

Mar.		
7	Society of Chemical Industry (London Section): "Recent Progress in the Glass Industry." Professor W. E. S. Turner. 8 p.m.	Burlington House, Piccadilly, London.
7	Institute of Chemistry (Manchester Section): "Plant Chemistry." Professor E. C. C. Baly.	16, St. Mary's Parsonage, Manchester.
8	Society of Chemical Industry (Birmingham Section): Annual Meeting. 7.30 p.m.	University Buildings, Edmund Street, Birmingham.
9, 10	Institute of Metals: Annual General Meeting. 10 a.m.	Institution of Mechanical Engineers, Storey's Gate, London.
9, 10 11	Institution of Chemical Engineers: Conference.	London.
10	Oil and Colour Chemists' Association: "Recent Research on the Protection of Steel With Paint." Dr. J. A. Newton Friend. 8 p.m.	8, St. Martin's Place, Trafalgar Square, London.
10	Institute of Chemistry (Liverpool Section).	St. George's Restaurant, Redcross Street, Liverpool.
11	Institution of Chemical Engineers: Annual Corporate Meeting.	London.
11	Institute of Chemistry (Bristol Section): Annual Business Meeting. 7.30 p.m.	University, Woodland Road, Bristol.
11	Institute of Chemistry. Lecture on "The Growth of the Profession of Chemistry During the Past Half-Century." A. Chaston Chapman. 8 p.m.	30, Russell Square, London, W.C.1.
11	Oil and Colour Chemists' Association (Manchester Section): "Cellulose Ester Varnishes: their Manufacture, Properties and Application." S. Smith.	Manchester.

The British Industries Fair of 1927

Some Impressions and Conclusions

THE Department of Overseas Trade seem to have been more or less satisfied with the general procedure of last year's Fair, for no fundamental changes have been made in the Exhibition which has been held for the last fortnight at the White City. The trade hours, 10 a.m. to 5 p.m., and public hours, 5 p.m. to 8 p.m., were the same, and there was no official opening at the Fair itself. The absence of a formal opening was still less evident than last year, for at 10 o'clock on February 21 there was practically nothing left undone, and a large amount of work during the preceding week-end had not even left finishing touches to be made on the opening day.

One gets more used to the lay-out of the White City year by year and, after a survey of the long straggling buildings, realises that there is probably no better place for the Chemical Section than that of Hall A, where once again the chemical manufacturers have collected sample bottles, model plants or chemical curiosities with a view to attract both buyer and public alike. The distribution of the stands is similar in principle to that of the 1926 Fair, with walls flanked with stands and island sites down the centre of the hall. The development during the year shows itself in the wider representation of the industry, and the absence of some important industries in last year's exhibition has been satisfactorily avoided. One finds, however, that a number of exhibits use the same centre of attraction as last year, which is decidedly misleading, for in each case the progress during the year could have been advertised. It is very obvious that the chemical manufacturer has other sciences and arts to learn besides chemistry, and Hall A, with its unfailing attraction, is testimony of his success in learning the science and art of advertising.

Modes of Presentment

It was said of the 1926 Fair that some exhibitors had not passed the "rows of bottles" stage of display, but if the same be said to-day it must be deprived of any derogatory insinuations, for the type is again present after last year's experience had been considered. Such exhibits have, moreover, proved satisfactory once again, and observation throughout the period of the Fair would indicate that this type of display is not as obsolete as at first appears to be the case. This does not, however, deprive alternative methods of presentation of their value. The working model, abnormalities such as specially grown crystals, application displays such as the dyeing of fabrics or tanning of hides, all have their special attractions, and we can feel confident that the manufacturer has lost no chance of determining what type of stand suits his individual purpose best.

A number of conclusions which can be gathered by a visit to the Chemical Section are very gratifying to the Englishman who has his country's welfare at heart. The enterprise which is needed at the present time in home industries is by no means absent from the chemical industry, and it is with considerable satisfaction that the industry will note that its brave attempts to uphold the status of British chemical industry are more than justified. There is no longer a need to think in terms of German fine chemicals, and a talk with any of the manufacturers of this class will convince one of the fact. The British fine chemical manufacturer will meet the researcher more than half-way, and it is evident that the maker realises that this will be for his benefit in the end.

Chemical Therapeutics

One other point of great interest is the continued enterprise in pharmaceutical and medical fields. The greater number of exhibitors are still more concerned with this branch of the industry, and it is therefore natural that some of the more marked advances of the year have taken place in this section. The fine chemical industry has been mainly fostered by the manufacturers of pharmaceutical and medical products, and this has led to a particularly useful collaboration, which shows itself, for example, in the manufacture of insulin, thyroxin, etc., where the art of fine chemical manufacture has come to the aid of the medical world.

As will appear from the above, the fact that the general public are admitted to the Exhibition has received very careful consideration by the exhibitors, and the success which this has achieved in perhaps that section of the Fair which lends itself least to such development is particularly noticeable. The position of the Chemical Section has been the subject of much discussion, but from the point of view of the public, a better position in the White City would appear impossible. As a result of a general inquiry it would appear that the success of the Exhibition as a Trade Fair is quite up to last year's standard, and in the case of one or two exhibitors results are immediate and good. On the other hand, a large proportion of the work which attaches itself to exhibition work must be regarded with a long view, and in that light it is very evident that no one can be disappointed, in view of the number and nature of the inquiries that have been made.

The Royal Visit

It is a very curious but unmistakable fact that the visit of the King and Queen to the Fair has a stimulating influence during the rest of the fortnight in which the White City is open. This has again proved to be the case, and considerable activity followed the Royal visit last Friday. Business on Saturday was surprisingly good in many cases, while the current week has completed a satisfactory fortnight's work. The King was interested in the silicon ester shown at the stand

of Albright and Wilson (which was described in detail in the last issue of THE CHEMICAL AGE), and in its use for stone preservation, restoration, and fresco painting. One point worth noting was that, in addition to the visits from foreign and overseas buyers, home buyers had also been making extensive inquiries. It is not, perhaps, unduly optimistic to regard this as a sign that, with the close of the strikes and difficulties of

last year, there is a feeling in the industry that we are at the beginning of a prosperous and active period. The Fair has also focused interest on overseas markets, and there were cases in which home buyers definitely made inquiries with a view to developing trade abroad. In this regard there is generally displayed an attitude of great friendliness to the Department of Overseas Trade, which, it is felt, is very efficiently fulfilling its function of acting as a connecting link between British manufacturers and overseas markets.

Agricultural Chemicals

Chemicals for agricultural and horticultural purposes, including arsenate of soda, arsenate of lead, insecticides, weed and worm killers, etc., were on view at the stand of the Acme Chemical Co., Ltd.

Miscellaneous

The Malehurst Barytes Co., Ltd., showed some improved barytes products, and various new scientific instruments for their examination. In the pottery section the Beetle Products Co., Ltd., showed crockery of various kinds, and other domestic articles, made from a non-phenolic synthetic resin (actually a thiourea condensation product), manufactured by the company. The products were of a wide range of types and colours, and, while not offered as unbreakable, were considerably stronger than glass or china. The white and coloured moulding powders manufactured by the company for the production of these articles, and for making electrical fittings, etc., were also on view.

Action Against Chemical Company

IN the Chancery Court at Manchester on Monday, Vice-Chancellor Courthope Wilson, K.C., began the trial of an action brought by Frederick Walker against Riley's Chemicals and Colours, Ltd., Oakenshaw Chemical Works, Clayton-le-Moors, claiming damages and injunctions in respect of several matters. Mr. Atkinson stated that the plaintiff owned land north of Holme Road, at Clayton-le-Moors, and had there a rubber works and a house. South of the road the defendants had a chemical works, and they were bound to keep Holme Road in good repair and fenced. They had not done so, said Mr. Atkinson. Motor lorries, loading and unloading in the road, stopped vehicular traffic to and from the plaintiff's premises. A crane for loading and unloading came into the road and projected over the plaintiff's land, which was a trespass. They had also polluted a well from which the plaintiff drew water for condensing purposes.

The Future of Chemists

To the Editor of THE CHEMICAL AGE.

SIR,—The somewhat acrimonious correspondence on the subject of pharmaceutical analysts is now drawn to an end, leaving both sides free to heal their wounds and contemplate with more or less equanimity their flutters in the field. Truth to tell, it was an interesting affair—most highly coloured things of this nature are—but it seems a pity that so much time and energy should have been wasted in doing battle when they would have done so much more good used in the constructive work we all need so badly. There is in human nature a tendency to observe the mote in the eye of a neighbour, overlooking the beam in our own, and while some of us may consider that a good many pharmacists have sold their birthright for a mess of pottage, can we, individually, look into our own branch of the chemical world and survey the aspect with equanimity?

The research workers tell us that they are being stifled for lack of funds; the work must be undertaken largely for its own sake because the salaries offered are so small, and if this is so, matters are certainly not right there. The University worker in all too many cases does not enjoy the income of a commercial traveller, and while here again work for its own sake may be a very inspiring copy-book maxim, something more is required in a workaday world. It cannot be said of the industrial chemist that he is in the main a heavy charge on industry, as there are few men there who earn commensurate salaries. (The British Association of Chemists could doubtless provide information which would show that all too often his salary is little better than that earned by an artisan.) "How deep is the pit into which we have fallen, and who shall deliver us?" appears to be the cry going up on all sides, while not so very long ago a University teacher of some note, in a personal conversation, expressed the opinion that it was positively immoral to advise chemistry as a profession to the vast majority of students who presented themselves because of the poor conditions they would meet when they had earned their qualifications. Certain among us are striving for the good of their brethren, but how are they supported?

The National Union of Scientific Workers has been in existence for some time, but it has recently admitted its membership to be under a thousand. The British Association of Chemists are striving to the best of their ability, but they will confess that their work is hampered through lack of members. Registration, re-definition, and a host of other schemes are in the air, but in the air they will remain unless chemists as a body make up their minds to bring them to earth for their mutual benefit. All this cannot be done by acrimonious discussions in any branch of the work, but I think the time is ripe for discussions on the greater issues, and in this connection I wonder whether you would place your columns at the disposal of your readers, inviting suggestions and criticism.—Yours, etc. OBSERVATOR.

[We should be glad to have contributions on the subject suggested by "Observator," particularly if they are written in the same spirit and style.—EDITOR, *C.A.*]

Pharmaceutical "Analysts"

To the Editor of THE CHEMICAL AGE.

SIR,—To put the final touch to the controversy in your valuable paper about pharmaceutical analysts, I should consider it a great favour if you published either in your correspondence column or in whatever shape or form you may think proper, the following short statement:—

I. Pharmacists consider themselves specialised chemists; that is, they are first chemists, and then pharmacists.

II. All drug and medico-chemical analysis comes legally and *de facto* within the province of the pharmacist.—Yours, etc. CAROL A. COFMAN-NICORESTI.

"Ashmoor," Hermon Hill,
Snaresbrook, N.E.

Buying Chemicals, Drugs, etc.

MR. J. J. MADAN, of J. F. Madan and Co., Calcutta, can at present be reached through Levetus, Ltd., of 194, Bishopsgate, London, E.C. He is interested in chemicals, drugs, oilmen's stores, etc.

Luigi Casale: An Appreciation

By Dr. J. F. Crowley

As briefly announced in THE CHEMICAL AGE of last week, Dr. Luigi Casale died at Vigevano, near Milan, on Friday, February 18, after an illness lasting some five months.

Dr. Casale, who was perhaps best known in this country as the discoverer of the synthetic ammonia process that bears his name, was born at Langosco (Lomellina) on November 22, 1882. In 1908 he graduated in chemistry at the Royal University of Turin, and in 1909 obtained the post-graduate degree of the Royal Polytechnic of Turin in electro-chemistry, physics and chemistry. From 1909 to 1912 Dr. Casale acted as Assistant Professor at the Institute of General Chemistry at the University of Turin, and in 1912 and 1913 he pursued a course of physical chemistry with Professor Nernst, the distinguished physical chemist, at the Physical Chemistry Institute of the University of Berlin. From 1913 to 1915 he acted as chief of the Laboratory of Organic Synthesis in the Institute of General Chemistry at the University of Turin and from 1915 to 1917 he was chief of the Laboratory of Pharmaceutical Chemistry of the Royal University of Naples, and was actively engaged in the manufacture of poison gas.

DR. CASALE.
(From a passport photograph, believed to be the only one he ever had taken)

While thus engaged in the service of his country Dr. Casale fell a victim to gas poisoning, which forced him to relinquish this work in 1917, when at the instance of the Italian Government he undertook the study of the synthesis of ammonia. Towards the latter part of the war, official Italian circles had decided that the production of fixed nitrogen as a vital war need was a matter demanding immediate attention, and it was felt in this connection that use should be made of Italian water power resources, particularly in view of the fact that Italy was wholly dependent on imported coal. This important work was entrusted to Dr. Casale, but the resources placed at his disposal by the Italian Government were inadequate for carrying through an important industrial research of this character. This fact, coupled with the end of the war, made it necessary for Dr. Casale to seek, from private sources, financial support for his investigations.

As a result of his researches ammonia was first produced in his laboratory early in 1920, and almost immediately afterwards a semi-industrial plant was erected for the continuous daily production of about 300 kilos of ammonia. In 1923, plants capable of producing 3 tons and 7½ tons of ammonia daily were working. In 1921, the Ammonia Casale Co. was incorporated for exploiting throughout the world the Casale patents for the production of synthetic ammonia, and in September, 1922, the first independent investigation of the process was made by the late Dr. J. A. Harker, F.R.S., in conjunction with the writer.

One of the distinguishing features of all Dr. Casale's work was the very great thoroughness with which his preparatory investigation was done and the skill and judgment he showed in the design and execution of the commercial plants based on his researches. It is to these features that the extraordinary development of his process throughout the world is largely due. How great this development has been may be gathered from the fact that the total capacity of the plants completed or in course of construction throughout the world on his system to-day is over 700 metric tons of synthetic ammonia daily, or an annual output capacity exceeding 250,000 tons of ammonia, equivalent to 1,000,000 tons of ammonium sulphate per annum. It is eminently satisfactory to know that the technical development of this process had been completed by Dr. Casale before his death, and that during the past few years he had been devoting himself largely to other fields of industrial research, such as the syntheses of methyl alcohol and of urea. Indeed, it is anticipated that the first industrial plants based on his work in these fields will be in operation shortly.

So far as the Ammonia Casale Co. is concerned, continuity of technical service is fortunately secured by the fact that during the past few years it has had an International Consultative Committee. Dr. Casale was managing director of the Ammonia Casale Co., President of the Societá Italiana Richerche Industriali (an associated company) and a member of many scientific institutions in Europe and in America. He visited this country in April, 1925, and it is interesting to note that he frequently expressed to the writer a wish, and, indeed, a determination, to settle down finally in this country, for which he had a strong affection.

Only a week before his death he presided over a conference with those of us who were associated with him on the consultative committee. On account of his illness, this conference had to be held at his bed-side, but notwithstanding his weakness, his great determination to see the projects to which he had set his hand reach final completion was obvious to everyone. To quote the words of Monsieur Bouchayer, the President of the Ammonia Casale Co., at his funeral :—

> "We left him with the hope of his recovery. 'I have much to do, my work is not yet achieved, it is necessary that I should have time to finish it,' he said, and we thought that in his case the soul would save the body. But he was much worn out, and the struggle against the illness which had menaced him for so long terminated disastrously. His whole existence consisted of work and of meditation. This man in whose brain there co-existed by a rare chance the highest scientific knowledge side by side with a perfect executive ability, lived for his work. . . . There have arisen in many countries of the world within a few years important works, the offspring of his genius. These are developing vigorously, for they are all well-born, sound, and strong children of a father who saw clearly and realised sanely."

I might also perhaps quote the words written to me by one of the leading professors of pure science in this country shortly after Dr. Casale's visit to London :—

> "I was very much struck with Dr. Casale's face. It struck me as that of a great man, thoughtful, profound, and simple. I notice these characteristics in all the really great men."

In addition to a most attractive personality, these are the qualities which impressed themselves most deeply on those of us who had the privilege of working in close association with Dr. Casale. He was a truly great man, and his monument is writ large throughout the world in the many works operating his process. In few men has it been given to achieve so much in a life so sadly cut short.

Dr. Casale leaves a widow and two young children to mourn his loss.

Indian Steel Protection

THERE have been divisions in the select committee of the Indian Legislative Assembly, and discrimination in favour of standard British steels (the Government's proposal) was eventually approved by a majority of one. The minority (Congress and Nationalist party members) urged the alternative imposition of a uniform weighted average, with a fixed basic duty on steel, without discrimination as to the origin of the product.

Institute of Chemistry

President's Review of the Year

At the forty-ninth annual general meeting of the Institute of Chemistry held at 30, Russell Square, London, Professor G. G. Henderson, President of the Institute, remarked that there appeared to be some abatement of the enthusiasm for chemistry as a career which was noted immediately after the war, although the roll of membership had increased by 242 during the year to a total of over 5,200. It had not been the policy of the Institute to adjust the stringency of its regulations and examinations on any principle of supply and demand, but rather to indicate to those who believed that they had a bent for the science that it does not necessarily lead to fortune, that it calls for hard work and sacrifices, and that since the supply of chemists at present exceeds the demand, more than average ability is required for even moderate success. The industries of the country did not sufficiently absorb the scientific talent supplied by the universities, and it was to be deplored that many graduates had to turn to callings which had no direct relation to their technical education.

The President then referred to the loss sustained by the death of Sir William Tilden, past president, Sir John Burchmore Harrison, Professor E. H. Rennie, Dr. J. J. Acworth, Mr. John Webster, and others, and reviewed the work of the various committees. He referred to the substantial legacy of about £5,000 bequeathed to the Institute by Sir Alexander Pedler, who would be gratefully remembered.

The Title "Chemist"

The Legal and Parliamentary Committee had made representations to the Departmental Committee on the Poisons and Pharmacy Acts regarding the use of the title "chemist," which, in this country, as in no other, was confused with the profession and craft of pharmacy, and expressed the hope that the public would come to realise that it should be applied to those who seriously pursued the science and practice of chemistry in the investigation of the secrets of nature and in its application to the arts and manufactures. He knew that the difficulties were great, but hoped that the pharmacists, who were so fortunate in alternative designations, would realise how seriously the profession, to which they must acknowledge much indebtedness, was hampered by the existing confusion, and how far-reaching was the effect of this confusion in hindering the proper recognition by the community at large of the importance of the chemist and his science to the industries and trade of the country.

Jubilee Celebrations

In October the Institute would celebrate its jubilee, and a medal and prize had been established in honour of the first President, Sir Edward Frankland, who held office from 1877 to 1880. The award would be made to a registered student for the best essay on a set subject of professional, as opposed to technical or purely chemical, importance. The subject for the first essay would be "The importance of chemistry to the welfare of the people."

The Public Appointments Committee was reviewing the position of public analysts under the Sale of Food and Drugs Acts, having particular regard to the increasing duties and responsibilities imposed upon these officers, in respect of which local authorities in general had allowed very little or no additional remuneration.

Registration

Discussions on the subject of registration were proceeding at meetings of the local sections of the Institute, which had been invited to submit concrete suggestions for the consideration of the Council. The Institute had been given authority in 1885, by Royal Charter, to examine, to grant certificates of competency, and to register persons qualified to practise chemistry, and the Council had done everything that reasonably could be done to provide for the admission to the ranks of the Institute of all who could claim to be trained and competent chemists. It was felt by many that the time had come to prepare some form of wider register of chemists of various grades, possibly with the ultimate object of securing powers for the restriction of practice to those who are duly qualified.

The position of the Institute was becoming steadily consolidated and its place in the affairs of the country more and more definitely acknowledged. Its sections in all parts of the country were united in striving to secure adequate recognition of the national importance of chemistry. He hoped that when industrial activity, which had been so much retarded in recent years, was more fully restored, chemists would have greater opportunities of showing what they could do to help in maintaining the economic position of the country, and would themselves participate in the results, on a scale more representative of their deserts than they had done in the past.

New Officers and Council

The officers and council for the ensuing year were elected as follows :—

President.—Professor Arthur Smithells, C.M.G., F.R.S.

Vice-Presidents.—Mr. E. R. Bolton, Dr. H. G. Colman, Mr. E. M. Hawkins, Professor G. G. Henderson, Dr. R. H. Pickard, and Professor J. F. Thorpe.

Hon. Treasurer.—Mr. P. H. Kirkaldy.

General Members of Council.—Mr. F. W. F. Arnaud, Dr. T. Lewis Bailey, Mr. H. C. L. Bloxam, Mr. A. J. Chapman, Dr. F. D. Chattaway, Dr. G. C. Clayton, M.P., Dr. W. Clayton, Professor J. W. Cobb, Dr. W. M. Cumming, Professor J. C. Drummond, Dr. Bernard Dyer, Mr. A. V. Elsden, Mr. A. G. Francis, Professor T. Gray, Professor I. M. Heilbron, Mr. E. Hinks, Dr. H. H. Hodgson, Mr. B. F. Howard, Professor C. K. Ingold, Mr. A. W. Knapp, Mr. T. Macara, Mr. B. G. McLellan, Mr. L. G. Radcliffe, Dr. A. Rée, Dr. E. K. Rideal, Mr. W. Rintoul, and Mr. F. Scholefield.

District Members of Council.—Dr. D. F. Twiss (Birmingham and Midlands), Mr. F. Southerden (Bristol and South-Western Counties), Dr. R. Thomas (Liverpool and North-West Coast), Mr. L. Eynon (London and South-Eastern Counties), Mr. W. Marshall (Manchester and District), Dr. P. E. Bowles (North-East Coast and Yorkshire), Mr. J. A. Watson (Edinburgh and East of Scotland), Mr. W. H. Coleman (Glasgow and West of Scotland), Mr. C. M. W. Grieb (Wales and Monmouthshire), Mr. J. W. Totton (Northern Ireland), Dr. A. G. G. Leonard (Irish Free State), Dr. Frankland Dent (the Overseas Dominions).

Woollen and Worsted Research

Exhibition at the Science Museum

On Tuesday, at the Science Museum, South Kensington, London, the Earl of Balfour opened an exhibition illustrative of the activities of the British Research Association for the Woollen and Worsted Industries. The exhibits included a number of great chemical interest. Wool grease was shown, together with pure chemicals derived from it; fertilisers prepared from wool shoddy and waste, yielding from 4 to 7 per cent. of ammonia; an apparatus which scrapes wool fibres, the scrapings being used to determine the nature of different layers in the fibre; and diagrams illustrating the adsorption of alkali from soap solutions by wool. The method evolved by Barker and Hirst for rendering visible mildew on cloth, by illumination in ultra-violet light, was shown in operation. This method also has important applications in the identification of various types of artificial silk in mixed fabrics, which is very difficult to carry out by other means.

The Association has been carrying out some very important work on the sulphur content of wool, and exhibits are shown indicating that the sulphur content has a close relationship—at present undefined—with the quality of the wool. The marking of sheep with tar has often led to serious trouble in the subsequent use of the wool, and a new marking liquid has now been evolved, consisting of wool fat, a filler (such as barium sulphate), wax, and mineral pigments of various kinds, the whole being taken up in turpentine substitute. A further interesting development is the use of indicators—such as brom-thymol blue—in dyeing wool for observational purposes. This method has already led to a knowledge of the migration of alkali in drying wool; and manufacturers are incorporating a section of wool dyed with an indicator at the end of each piece, whereby the subsequent changes due to the presence of alkali may easily be followed. Incidentally, a method has been worked out for removing the last traces of alkali from the cloth. The "Fugitometer" is a newly developed piece of apparatus for determining the fastness of dyed fabrics to light. It is so arranged that each piece of material may be exposed not only to suitable light, but to any desired degree of humidity, which represents an important advance in this field. It was announced by Mr. Clough at the opening of the exhibition that the Association proposes to undertake some work on the standardisation of dyestuffs.

Meeting of Fuel Section in Leeds

Discussion on Coke, Fuels, and Steel Scaling

THE Yorkshire Section and the Fuel Section of the Society of Chemical Industry held a joint meeting at Leeds, on Monday, for the reading and discussion of papers dealing with fuel problems. Professor A. Smithells, F.R.S., (chairman of the Fuel Section of the Society) presided. The Chairman, at the opening of the proceedings, expressed the hope that this first joint meeting of the Yorkshire Section and the Fuel Section of the Society would be the first of many. The Fuel Section and its officers would be very happy to do anything they could to contribute to the success of such meetings in the future.

The first paper was read by Professor Cobb, Dr. Marson, and Dr. Angus, and was entitled "The Influence of Atmosphere and Temperature upon the Scaling of Steel." In the subsequent discussion Mr. R. J. Sargent (of Hadfield's, Ltd.), Mr. J. W. Wood, and Mr. G. F. Smith (of the Airedale Foundry, Hunslet) took part, and Professor Cobb and Dr. Angus replied.

Water Gas Manufacture

Dr. A. Parker read a paper on "A Thermal Study of the Process of Manufacture of Water Gas." In regard to this paper, Dr. J. G. King (H.M. Fuel Research Station, Greenwich) said that the usual scientific method of making a heat balance of a water-gas plant had been to add up the separate items, but that left unaccounted for the heat radiated from the setting and the unknown loss in the blow gases. Dr. Travers, in his experiments, had made an assumption for the heat radiated from the setting. In settings of different types, however, this was bound to vary, and it was almost impossible to add this assumed quantity to actual measured quantities. In experiments carried out at the Fuel Research Station the volume of blow gases had actually been measured by Pitot tubes, and it had also been calculated. The results were not published, however, because the investigators were not satisfied with them. The only other method was to use a holder, but that they had not attempted yet. They had also tried to measure the losses of carbon at blow periods. A system such as Dr. Travers had suggested ought to be worked out, with all the various losses of carbon from the system added in. They would still be faced, however, with the difficulty of measurement of radiation losses.

Dr. Parker, replying, said he wanted to make it clear that he did not belittle the method of constructing separate blow and run balances at all. The main point was that in making balances of that kind it was necessary that the fundamental data should be known with sufficient accuracy, and therefore, he had put forward the new method, which depended on the determined calorific value of coke, and not on the assumed thermal value of coke carbon.

Coke and Carbonised Fuels

The following papers were then read, and discussed together:—"A Study of Coke Formation," by Mr. R. A. Mott; Coke in Relation to Some of its Industrial and Domestic Uses," by Messrs. Hollings and Siderfin; and "The Behaviour of Carbonised Fuels in the Open Fire-grate," by Mrs. M. F. Bligh and Mr. H. J. Hodsman.

Dr. J. G. King (H.M. Fuel Research Station) referred to the method developed at the Fuel Research Station for the determination of the reactivity of coke, the work being carried out in conjunction with the Federation of Iron and Steel Manufacturers. A paper on the development of the standard method was in the press, and would shortly be published as a technical paper by the Fuel Research Board. Research on the application of the method and the interpretation of the results was being continued. In this method, as in the one described by Messrs. Hollings and Siderfin, the CO_2/C reaction was used. The reactivity of coke was measured by the volume of carbonic oxide obtained, when 100 cc. of carbon dioxide were passed at a rate of 5 c.c. per minute over a standard volume of sized coke, which had been subjected to a standard pre-treatment with nitrogen and was maintained at a temperature of 950 deg. C. Investigation had been made of the range and sensitivity of the apparatus, and of the effect of possible variables—temperature, time of contact, and size of coke used. He described the method in detail, and gave tables showing some of the results obtained.

Professor J. W. Cobb, dealing with the paper by Messrs. Hollings and Siderfin, said that the falling off in the reactivity of treated cokes was remarkable, and they had not yet had an explanation of it; but from his experience he uttered a warning against premature conclusions based on the behaviour of sodium carbonate coke, because all sorts of funny things had been ascertained about it by experiments at Leeds, but which still defied complete explanation.

Horace Brown Memorial Lecture

Professor Armstrong's Memories

ON Friday, February 25, Professor H. E. Armstrong delivered the Horace Brown Memorial Lecture of the Institute of Brewing, at the Institution of Electrical Engineers. Among those who accepted invitations to be present were Sir A. D. Hall, Sir Frank Heath, Sir David Prain, Sir E. J. Russell, Dr. Stephen Miall, Dr. R. H. Pickard, Mr. A. Chaston Chapman, Sir F. Gowland Hopkins, and Mr. W. J. U. Woolcock. The proceedings were opened by the presentation to Professor Armstrong of the Horace Brown Medal, and in acknowledging the presentation Professor Armstrong said that in his family the medal would remain as a lasting tribute to a beverage for which he had a lasting partiality when properly so-called.

In his lecture, Professor Armstrong began by a brief sketch of the early life and scientific training of his friend Horace Brown. Horace Brown was born July 20, 1848, at Burton-on-Trent, and educated at the local grammar school. The feature of his early career was his devotion to the study of scientific subjects in his out-of-school time. Beginning with astronomy when about ten years old, he passed on to electricity, then to microscopic study, and afterwards to physics, ending with chemistry, the subject which he finally adopted. Working alone he acquired a fair knowledge of qualitative analysis by the time that he was fifteen years old. About this time he met Peter Griess, then chemist to Allsopp's Brewery at Burton, and received from him lessons on quantitative analysis. He entered the College of Chemistry in Oxford Street, London, then under the celebrated Hofmann, in the spring of 1865. The lecturer joined the school at the same time, and the two boys were soon fast friends for life. After only six months' professional training, when scarcely 17½ years old, Horace Brown entered as junior brewer into Worthington's Brewery at Burton. In 1875, at the age of 25, he was made manager of the manufacturing department and held this post until 1889, when he became a managing director, on the incorporation of the firm as a limited liability company. He retired in 1893, but only to devote himself to consulting work and original inquiry.

Scientific Method in Brewing

The lecturer then sketched the gradual way in which Brown introduced scientific methods into brewery practice and the development of his activity as an original worker, claiming for him the position of pioneer in making brewing subject to scientific control. The picture drawn was that of a man gifted with unusual clearness of insight and a most systematic untiring worker. His scientific researches were considered of such moment that he was elected a Fellow of the Royal Society in 1889, was awarded the Longstaff Medal of the Chemical Society in 1894, a Royal Medal of the Royal Society in 1903 and, finally, the Copley Medal of that Society in 1920—the highest scientific distinction in our country. He died on February 5, 1925. Horace Brown's early work was built largely upon the foundation laid by the great Pasteur. An industry, the lecturer said, which has had within its fold men of such nobility of outlook and penetrative power, had reason to be proud and to take pride in its potential status among the comity of professions. The industry was one affording special opportunities of studying the life process. In instituting the lectureship, the Institute of Brewing was taking a great step towards the goal at which many would have brewers aim; they were holding out the right hand of fellowship to the scientific fraternity, especially to physiological inquiry and were, in fact, arranging for a periodical audit of their scientific account.

Among those present at the lecture was Mr. Nobel, who first knew Horace Brown 65 years ago, and who remained on terms of close friendship with him till the end of his life. At Professor Armstrong's invitation, Mr. Nobel gave a short account of his early memories of their mutual friend.

Behaviour of Phenolic Resins

Further Notes by Mr. A. A. Drummond

At a meeting of the Oil and Colour Chemists' Association, on Thursday, February 24, Mr. A. A. Drummond, of the National Physical Laboratory, Teddington, read a second paper on the behaviour of synthetic resins. In this he discussed the question of volatile matter in soluble phenolic resins, and its effect on the physical properties of the resin, with special reference to solubility, inasmuch as the latter property is of fundamental importance in the production of new varnishes and lacquers.

The broad conclusions which the data contained in the paper appeared to indicate were :—

(1) The complex mixture met with in soluble formaldehyde-phenolic resins supplied as shellac substitutes and for insulating varnishes contained a considerable proportion of volatile materials (free phenol, phenolic alcohols, etc.), which were liberated or tended to be liberated under the conditions of stoving, or in use. The variations in the amount of such matter left in the resin were likely to lead to variations in the behaviour of varnish films prepared from the resin (durability, electrical resistance, etc.).

(2) Processes were available for the removal of such volatile matter prior to its use in varnishes, and changes in the properties of the resins were brought about by these methods of purification, particularly as regards solubility. The solubility data in the paper, said Mr. Drummond, might serve as a reminder, in any research which investigators had in view on the production of new varnishes and lacquers, that :—

(*a*) The application of heat to resin-solvent mixtures did not necessarily facilitate the " solution " of the resin ;

(*b*) excess of the liquid media in contact with the resin did not necessarily facilitate the " solution " of the resin ;

(*c*) it was possible to select mixtures of resin and two or more liquid media, one of which latter need not necessarily be a solvent of the resin (*e.g.*, water), which would give homogeneous solutions when the components were present in certain specific proportions ; the equilibrium might be disturbed by only slight changes in the composition of the system. The susceptibility of the equilibrium to disturbance varied, however, with the composition, and for certain ranges of composition a wide margin of variation was available, in which the homogeneity of the mixture was unaffected.

In conclusion, Mr. Drummond showed micro-photographs of films prepared from phenol resin in spirit solution (20 per cent.), air dried and exposed to alternating damp and dry atmosphere for five months, showing the effect of various added substances to the resin ageing.

Discussion

Dr. J. J. Fox expressed regret that some electrical engineers had actually barred the use of synthetic resins of this type as insulating media. That was a great pity, but he congratulated Mr. Drummond on the large measure of success he had attained so far in securing information as to why these resins failed. Mr. Drummond had hit upon a very novel and neat device for estimating volatile matter, which was particularly advantageous because by this method he had the film before his eyes. Another method was to drop a few drops of the solution and solvent—alcohol or acetone, or the mixture—on to the surface of very clear mercury or dust-free water. In that way a film of about 2 or 3 μ thick could be obtained.

Mr. S. S. Woolf, dealing with Mr. Drummond's experiments for determining the amount of volatile matter in resins, suggested that different results might be obtained by heating the resins directly at 110°, instead of heating first for a period at 60° and heating subsequently at 110°. By heating at 60° for a period one would drive off volatile matter, which if the temperature were raised directly to the higher level, might lead to a reaction and produce a different result.

Mr. Drummond, replying to the discussion, agreed with Dr. Fox that in the estimation of the amount of volatile matter in resins a thinner film than that obtained by the tin-foil method described would give still more satisfactory results. The experiment suggested by Mr. Woolf, of raising the temperature directly to 110° instead of arresting it for a period at 60°, when investigating the amount of volatile matter in resins, should certainly be tried. He certainly thought that synthetic resins were likely to be satisfactory ; great success had already been attained. These resins had been developed to an extraordinary degree, and they were used in America considerably more than in this country. He did not think we had anything in the natural products which compared with the hardening phenolic resins. With regard to the question of pure materials, he said that in practice pure phenol was frequently used.

Chemical Matters in Parliament

Gas Containers for Airships

Sir P. Sassoon (House of Commons, February 23) informed Captain Garro-Jones that the gas-containers for the Government airship R.101 were being made at the Royal Airship Works, Cardington.

Foreign Employees in Sugar Beet Factories

Replying to Sir Frederic Wise (House of Commons, February 23), Mr. Guinness stated that the percentage of foreigners employed in the 14 beet sugar factories during the past manufacturing season was 2·3 per cent.

"C.A." Queries

We receive so many inquiries from readers as to technical, industrial, and other points, that we have decided to make a selection for publication. In cases where the answers are of general interest, they will be published ; in others, the answers will simply be passed on to the inquirers. Readers are invited to supply information on the subjects of the queries :—

31 (*Iron Sulphide and Sulphate of Ammonia*).—" I shall be pleased to know if you can tell me the names of two or three concerns supplying to the trade iron sulphide and sulphate of ammonia, as I wish to purchase these materials for use in a proprietary mixture."

Recent Research on Colloids

In a paper on " Some recent advances in colloid theory," read before the Manchester Literary and Philosophical Society on Tuesday, February 22, Mr. D. C. Henry described experiments made recently at the Cambridge Low Temperature Research Station which, he indicated, had thrown some light on the constitution of gelatin gels. He also outlined investigations by Sir William Hardy of the adhesion of two metallic surfaces lubricated with various liquids ; the discovery by Professor McBain of the somewhat surprising fact that certain pure crystalline substances can form joints between metal surfaces comparable in strength with joints made with recognised adhesives ; and some particularly difficult measurements completed by Professor Whytlaw Gray on the effective density and light scattering power of individual particles in smoke which are not homogeneous, but consist of loose aggregates of smaller particles.

Oil Shale Problems

After an examination of the problems associated with the exploitation of Australia's oil shale resources the Australian Council for Scientific and Industrial Research has suggested that the co-operation of the Development and Migration Commission be sought towards an inquiry designed to ascertain what sections of the shale oil industry were chiefly responsible for its economic failure. If as a result of such inquiry it seemed probable that the industry could be placed on a satisfactory footing by scientific investigation of certain aspects of it, the council intimated that they would be prepared to undertake further inquiries, and furnish advice as to the lines which should be followed in such investigations. Very considerable cost, however, would be involved in establishing and conducting stations for examining apparatus and conditions for the retorting of shale, and laboratories for refining and improving the products. In view of this and the imperative need to devote large sums of money to the prosecution of research into problems connected with animals and plants, it was not considered advisable at this stage for the Council for Scientific and Industrial Research to provide from its limited funds for experimental work on the industrial exploitation of shale deposits.

From Week to Week

FATAL INDUSTRIAL ACCIDENTS reported during January, 1927, included four under the heading of chemicals.

LEVER BROS.', LTD., soap and candle factory in Shanghai is, according to a recent report, being prepared for the accommodation of troops.

SIR MAX MUSPRATT recently delivered an address on "Some Economic Perplexities" before a meeting of the Liverpool and District Bankers' Institute.

THE FUNERAL of Mr. James Done took place at Widnes on Tuesday, February 22. He was for 41 years on the staff of the Muspratt works of the United Alkali Co., Ltd.

THE BUREAU OF CHEMICAL ABSTRACTS has appointed Mr. F. G. Crosse, F.I.C., to be assistant editor in charge of British Chemical Abstracts "B" (Applied Chemistry).

A TRADE FAIR will be held in Toronto in August. The British section will this year be considerably larger than usual. A fair is being organised in Melbourne, and will be held in February, 1928.

THE THIRD CENSUS OF PRODUCTION (1924) is now being completed, and in the current *Board of Trade Journal* (March 3) a preliminary report on the Paints, Colours, and Varnish Trades is given.

THE Crown Fuel Works, Port Talbot, which have been idle for over twelve months, restarted operations on Monday last. Nearly 500 men are normally employed in the works and all have been re-employed.

TEHIDY MINERALS, LTD., held their annual general meeting on Saturday, February 19. It was stated by Sir H. Montague Rogers that the company possessed extensive China Clay areas, for which the 1926 income was over £4,000.

SIR LENNON RAWS is relinquishing his position as manager of Elder, Smith and Co., Ltd., in Melbourne, and has been appointed managing director of Nobel (Australasia), Ltd. He will continue in association with Elder, Smith and Co., Ltd., as their Melbourne director.

ALLEN CRAIG AND CO. (LONDON), LTD., of Imperial House, Kingsway, London, W.C.2, announce that owing to the expiration of lease, their address from Friday, March 4, will be St. Dunstan's Buildings, St. Dunstan's Hill, E.C.3. Telephone numbers, Royal 8434/5.

MR. G. M. NAVE, who has been engaged as an assistant chemist in the engineers' department of Newcastle and Gateshead Gas Co., has secured an appointment with the Northern Coke Research Committee at Armstrong College, Newcastle, and will take up his new duties at the end of March.

RECENT WILLS INCLUDE: Mr. Charles Henry Barlow, of Chorlton-cum-Hardy, formerly of Oldham, at one time secretary of the Calico Printers' Association, and late chairman of Robinson Bros., cotton finishers, of Greenfield, and of the Waterdale Dyeing and Finishing Co., Ltd. (net personalty £28,247), £29,612.

MARCELIN BERTHELOT'S CENTENARY will be celebrated in October. Great Britain will send representatives to the celebrations. It is proposed to establish in Paris a "House of Chemistry" of an international character to perpetuate his name. Information in regard to this scheme has been published in THE CHEMICAL AGE from time to time.

THE TRANSFORMATION OF ARTIFICIAL SILK from a luxury fabric into an all-purpose material is indicated by the decision to repeat this year the successful exhibition of British artificial silk goods first held last year. Mr. A. M. Samuel, M.P., Parliamentary Secretary to the Department of Overseas Trade, will open the exhibition, which is to be held at the Holland Park Hall from April 4 to April 9.

THE FIRST MEETING OF CREDITORS of Ernest William Kirk, described as a journeyman chemist, and previously a wireless apparatus maker, of 2, Riddings Street, Derby, was held at the Official Receiver's Offices, Nottingham, on Thursday, February 24. His difficulties arose out of his wireless work, and since September, 1926, it was stated, he had been assistant chemist to a manufacturing firm at a salary of £200 per annum.

THE CHESHIRE UNITED SALT CO. announces that all arrangements connected with the formation and technical management of the company are completed, and that the salt works have been taken over. Arrangements have been authorised by the board for the installation of additional plant, and it is expected that considerable saving will be effected in the manufacturing costs in consequence of the amalgamation and developments.

CO-OPERATING WITH BRUNNER MOND AND CO., LTD., the Northwich Urban Council decided on Tuesday to raise a loan for the erection by the firm of 200 houses for workmen in the firm's employ, the loan to be equal to 90 per cent. of the value of the property. The period of the loan and the rate of interest will be mutually agreed upon. The houses are to be begun immediately, the Ministry of Health having agreed to assist in the scheme. About 240 men are on the company's books awaiting houses.

MR. H. C. GREEN, general manager of J. C. and H. Field, Ltd., has, at the invitation of the directors, joined the board.

DR. ARTHUR WADE will read a paper on "Two Shallow Oilfields in Texas—A Detailed Study," before the Institution of Petroleum Technologists, on Tuesday, March 8, at the Royal Society of Arts.

MR. A. CHASTON CHAPMAN, F.R.S., will deliver a lecture on "The Growth of the Profession of Chemistry During the Past Half-Century" at the Institute of Chemistry on Friday, March 11, at 8 p.m.

MR. A. SCIVER, B.Sc., A.I.C., has been appointed junior partner in the consulting practice of Drs. S. and E. K. Rideal. Mr. Sciver is also lecturer on bacteriology applied to chemistry at the Battersea Polytechnic.

MR. GEORGE HEDLEY, of the Linthorpe-Dinsdale Smelting Co., Ltd., has been elected president, and Mr. Ben Walmesley, of Bolckow, Vaughan and Co., Ltd., has been elected vice-president of the Cleveland Ironmasters' Association.

DR. CHARLES M'LEOD sustained a fracture of the skull in an explosion which occurred in the chemical laboratory of the Aberdeen Grammar School early last week. Although Dr. M'Leod retired in June, 1925, he continued to visit the laboratory for chemical experiments.

INDIGO EXPORTS from India during 1926 amounted to 2,005 cwt., as compared with 1,838 in 1925 and 3,884 in 1924. Detailed figures for 1926 are as follows: To the United Kingdom, 465 cwt.; to Persia and Mesopotamia, 675 cwt.; to Egypt, 378 cwt.; and to other countries, 487 cwt.

UNDER THE HEAD OF "The British Chemical Industry: Lines of Development," Mr. W. J. U. Woolcock contributes to the February number of *British Industries*, the organ of the Federation of British Industries, a comprehensive review of the British industry and the prospects and problems before it.

TAYLOR'S DRUG CO. has been acquired by a group of London financiers, who have formed a new company, registered under the title of "Taylor's (Cash Chemist) Trust, Ltd.," with a capital of £1,000,000, divided into 880,000 7½ per cent. cumulative preferred ordinary shares of £1 and 2,400,000 deferred shares of 1s.

THE ROYAL HUMANE SOCIETY'S bronze medal has been awarded to Mr. John Dodge, of Lower Edmonton, an erector in the employ of Clayton, Son, and Co., contractors, of Leeds. He jumped into a gasholder in which there was tar and ammoniated liquid to the depth of 20 ft. to save a fellow workman who had fallen in.

THE RAGUSA ASPHALTE PAVING CO., LTD., of Oxford Street, London, it is believed, have acquired the important concession for Great Britain and of Northern Ireland, the Irish Free State and the British Dominions and Colonies, of the Montrottier Seyssel Asphalte Mines, which are situated in Bassin de Seyssel, Haute Savoie, France. These mines are among the best known in the Seyssel Basin, and yield an exceedingly fine grade of asphalte rock, with a high bitumen content.

APPLICATIONS ARE INVITED for the following appointments: Chemist and Metallurgist to the Egyptian Government Assay Office, Cairo. £718. The Chief Inspecting Engineer, Egyptian Government, 41, Tothill Street, Westminster, London, S.W.1.—Assistant Chemist in the University of Bristol Research Station, for work on fruit and vegetable preservation. £300 plus bonus and superannuation. The Resident Director, University of Bristol Research Station, Campden, Gloucestershire. March 14.

G. C. HURRELL AND CO., chemical engineers, Old School Works, Woolwich Road, Charlton, London, announce that in order to cope with the increased demand for the Hurrell Homogeniser, they have been compelled to acquire larger premises. This has necessitated removal from Sun Lane; consequently the Sun Lane engineering Works is no longer a correct title for the business, which will in future be carried on in the name of the proprietors at the new works as above. The nearest station is Charlton Junction, Southern Railway.

UNEMPLOYED INSURED PERSONS in Great Britain and Northern Ireland in the chemical manufacturing trades at January 24 numbered 7,610 (males, 6,474; females, 1,037). Corresponding figures for explosives manufacture were 1,586 (1,073 and 513); for paint, varnish, red and white lead, etc., manufacture, 1,064 (865 and 199); and for oil, glue, soap, ink, match, etc., manufacture, 6,462 (5,325 and 1,137). In the trades given in the above order, the estimated numbers of insured persons at July, 1926, were 94,530, 18,590, 17,350, and 80,400; and the percentages unemployed at January 24, 1927, 8·1, 8·5, 6·1, and 8 respectively. For the chemical trade this shows a decrease of 0·8 in the percentage unemployed as compared with January 25, 1926.

Obituary

MR. C. E. DAVIES, electrical engineer, on the staff of Synthetic Ammonia and Nitrates, Ltd., Billingham.

MR. HARRY HARDISTY SMITH, 75, of Burley Wood, Leeds. He was for fifty years with Hirst, Brooke and Hirst, manufacturing chemists, of Leeds, of which firm he was latterly a director.

References to Current Literature

British

ANALYSIS.—The examination of mixtures of coconut-oil and palm-kernel oil. The determination of butter-fat in margarine. G. D. Elsdon and P. Smith. *Analyst*, February, pp. 63–66.

A rapid method for the sorting of butters and margarines. C. H. Manley. *Analyst*, February, pp. 67–72.

The quantitative estimation of a mixture of isomeric unsaturated compounds. I. A bromine addition method. R. P. Linstead. *Chem. Soc. Trans.*, February, pp. 355–362.

ELECTROCHEMISTRY.—Over-potential at antimony cathodes and electrolytic stibine formation. H. J. S. Sand, J. Grant, and W. V. Lloyd. *Chem. Soc. Trans.*, February, pp. 378–396.

GENERAL.—A note on the connection between chemical valency, electron grouping, and crystal structure. W. Hume-Rothery. *Phil. Mag.*, February, pp. 301–305.

Coke in relation to some of its industrial and domestic uses. H. Hollings and N. E. Siderfin. *J.S.C.I.*, February 25, pp. 76–84T.

A thermal study of the process of manufacture of water-gas. A. Parker. *J.S.C.I.*, February 25, 72–76T.

ORGANIC.—Benzylation of the higher alkylamines. J. Reilly and P. J. Drumm. *J.S.C.I.*, February 25, p. 84T.

The synthesis of *meso*-alkyl and *meso*-aryl anthracene derivatives. E. de B. Barnett, J. W. Cook, and I. G. Nixon. *Chem. Soc. Trans.*, February, pp. 504–512.

iso-Erucic acid. T. J. Mirchandi and J. L. Simonsen. *Chem. Soc. Trans.*, February, pp. 371–378.

The synthesis of 5 : 6-dimethoxyindole and its 2-carboxylic acid. A. E. Oxford and H. S. Raper. *Chem. Soc. Trans.*, February, pp. 417–422.

PHYSICAL.—The partition of hydrogen chloride between water and benzene. R. W. Knight and C. N. Hinshelwood. *Chem. Soc. Trans.*, February, pp. 466–472.

Contribution to the physical chemistry of complex salts. I. Transport numbers of copper salicylate. W. E. Hamer and C. R. Bury. *Chem. Soc. Trans.*, February, pp. 333–338.

United States

ADSORPTION.—Studies in adsorption. S. Ghosh and R. N. Dhar. *J. Phys. Chem.*, February, pp. 187–206.

Adsorption and heat of adsorption of ammonia gas on metallic catalysts. W. A. Dew and H. S. Taylor. *J. Phys. Chem.*, February, pp. 277–290.

Adsorption equations. E. Swan and A. R. Urquhart. *J. Phys. Chem.*, February, pp. 251–276.

ANALYSIS.—Diphenylbenzidine as an internal indicator for the titration of zinc with potassium ferrocyanide. W. H. Cone and L. C. Cady. *J. Amer. Chem. Soc.*, February, pp. 356–360.

GASES—Absorption of nitrogen oxides from ammonia oxidation. C. Toniolo. *Chem. Met. Eng.*, February, pp. 92–95.

Dehydration of manufactured gas. F. W. Sperr. *Chem. Met. Eng.*, February, pp. 97–100.

GENERAL.—Studies on the mechanism of filtration. E. E. Jewett and R. E. Montonna. *Chem. Met. Eng.*, February, pp. 86–91.

The gaseous reaction between hydrogen sulphide and sulphur dioxide. H. A. Taylor and W. A. Wesley. *J. Phys. Chem.*, February, pp. 216–230.

ORGANIC.—Some phenylgermanium derivatives. C. A. Kraus and L. S. Foster. *J. Amer. Chem. Soc.*, February, pp. 457–467.

The preparation of alizarin for phthalic anhydride and orthodichlorobenzene. M. Phillips. *J. Amer. Chem. Soc.*, February, pp. 473–478.

Ethers of diacetone alcohol. A. Hoffman. *J. Amer. Chem. Soc.*, February, pp. 530–535.

Derivatives of dibenzoarsenole. H. Gottlieb-Billroth. *J. Amer. Chem. Soc.*, February, pp. 482–486.

PHASE RULE.—Equilibrium in the systems : alkali chloride—cobalt chloride-water. H. W. Foote. *Amer. J. Science*, February, pp. 158–166.

SEWAGE.—Some characteristics of sewage sludge. S. L. Neave with A. M. Buswell. *Ind. Eng. Chem.*, February 1, pp. 233–234.

Practical application of hydrogen-ion control in the digestion of sewage sludge. S. E. Coburn. *Ind. Eng. Chem.*, February 1, pp. 235–236.

Effect of temperature on sewage sludge digestion. W. Rudolfs. *Ind. Eng. Chem.*, February 1, pp. 241–243.

German

ANALYSIS.—The determination of lead by oxidation with persulphate. P. Ekwall. *Z. anal. Chem.*, January 11, pp. 161–179.

Micro-methoxy determinations. A. Friedrich. *Z. physiol. Chem.*, February 4, pp. 141–148.

Determination of small quantities of hydrogen in nitrogen as hydrogen chloride. G. Heyne. *Z. anal. Chem.*, January 11, pp. 179–183.

APPARATUS.—A new form of thermometer for the cryoscopy of aqueous solutions. H. Menzel. *Z. Electrochem.* February, pp. 63–69.

COLORIMETRY.—Application of the colorimetric method to the determination of N in foodstuffs and other substances. W. Golub. *Z. anal. Chem.*, January 5, pp. 119–128.

The reduction of copper salts by dextrose and uric acid. E. Lányi. *Biochem. Zeit.*, January 11, pp. 85–96.

FERMENTATION.—The dependence of alcoholic fermentation on hydrogen-ion concentration. VI. E. Hügglund and T. Rosenqvist. *Biochem. Zeit.*, January 11, pp. 61–64.

ORGANIC.—The carotinoid colouring matter of the higher plants. H. Kylin. *Z. physiol. Chem.*, February 11, pp. 229–260.

The rearrangement of α-aminoacids into unsaturated compounds and their conversion into α-ketoacids. E. Abderhalden and E. Rossner. *Z. physiol. Chem.*, February 11, pp. 261–266.

Miscellaneous

ANALYSIS.—A new volumetric method of determination of molybdenum. G. Denigès. *Comptes Rend.*, February 7, pp. 330–331.

The determination of perchlorate in Chili saltpetre with nitron. A. Vürtheim. *Rec. Trav. Chim. Pays-Bas*, February 15, pp. 97–101.

COLLOIDS.—The existence of two zones of instability in the flocculation of ferric hydroxide sol by electrolytes with polyvalent anions. A. Boutaric and M. Dupin. *Comptes Rend.*, February 7, pp. 326–327.

A general method of preparation of metallic colloids. E. Fouard. *Comptes Rend.*, February 7, pp. 328–329.

GENERAL.—The activation of oxygen (especially during the oxidation of aldehydes). W. P. Jorissen and P. A. A. van der Beek. *Rec. Trav. Chim. Pays-Bas*, February 15, pp. 42–46.

ORGANIC.—Reduction products of dinaphthanthracenediquinone. R. Seka and K. Sekora. *Monatshefte*, February 4, pp. 519–528.

Nitroderivatives of dinaphthanthracenediquinone and their transposition. R. Seka and O. Schmidt. *Monatshefte*, February 4, pp. 619–626.

The electrochemical oxidation of benzene homologues. IV. *o*-Xylene. F. Fichter and M. Rinderspacher. *Helv. Chim Acta.*, February 1, pp. 40–45. V. Ethylbenzene. K. Ono. *Ibid.*, pp. 45–52.

The constitution of some anthocyanidins. P. Karrer and R. Widmer. *Helv. Chim. Acta*, February 1, 1927, pp. 5–33.

A new method of converting tertiary heterocyclic bases into secondary desalkylated bases. M. and M. Polonowski. *Comptes Rend.*, February 7, pp. 331–333.

PHYSICAL.—The change of the p_H of some buffer mixtures at varying temperatures. I. M. Kolthoff and F. Tekelenburg. *Rec. Trav. Chim. Pays-Bas*, February 15, pp. 33–41.

The measurement of ionometric acidity by inversion of sucrose. Application to complex media : Sols. V. Vincent. *Comptes Rend.*, February 7, pp. 338–340.

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

Abstracts of Complete Specifications

264,558. Acetic Acid, Manufacture of. H. Dreyfus, 8, Waterloo Place, London, S.W.1. Application date, June 13, 1925.

Methyl alcohol and carbon monoxide are transformed into acetic acid when heated with catalysts which are, or are capable of forming, acetates which split off acetic acid at temperatures preferably about 200°–300° C. Suitable catalysts include copper oxide, tin oxide, lead oxide, copper acetate, zinc oxide, zinc acetate, zinc methylate, aluminium methylate, tin methylate, etc., with or without potassium or sodium acetate, or potassium or sodium methylate. Pressures of 50–150 atmospheres are employed. In an example, carbon monoxide at 80–120 atmospheres is bubbled through methyl alcohol at 60°-70° C., and then passed over tin oxide or zinc oxide maintained at 250°–300° C. The gases are condensed to obtain acetic acid. Reference is directed in pursuance of Section 8, Sub-section 2 of the Patents and Designs Acts, 1907 and 1919, to Specification 254,819.

264,937. Cellulose Derivatives, Manufacture of. H. Dreyfus, 8, Waterloo Place, London, S.W.1. Application date, October 30, 1925.

Cellulose acetate or other cellulose esters are obtained by subjecting cellulosic material, which has previously been subjected to pretreatment with organic carboxylic acids, to esterification in the presence of little or no benzol or other diluent, or solvent, so that the cellulose ester is produced substantially in the solid or fibrous state. The operation is effected by passing the vapour of the esterifying agent with or without the vapour of a solvent such as acetic acid, and with or without air or other indifferent gas, over the cellulosic material. The latter is first impregnated with a condensing agent such as sulphuric acid, in the proportion of 0·5–3 per cent. of the weight of the cellulosic material. If condensing agents of a volatile nature are employed, they may be mixed with the esterifying vapour, which is passed through the material. The cellulose esters when formed may be subjected to the action of formic or acetic acid vapour containing sufficient moisture to destroy any anhydride remaining in the ester. Several examples of the process are given.

264,955. Emulsification. J. T. Jones, "Barnfield," Llandudno Junction, Carnarvon, Wales. Application date, November 10, 1925.

Emulsifying agents are obtained by treating aqueous dispersions of animal or fish proteins dispersible in water with dilute solutions of caustic alkalis below 100° C. Animal or fish glue may be treated in this way, and the product may be used in the manufacture of detergent compositions, compositions used in weighting or finishing textile fabrics, and emulsions of oils and fats, tars or bitumens.

265,032. Colour Lakes, Production of. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, March 29, 1926.

Colour lakes are known which are obtained by treating basic dyestuffs which may also contain acid groups with phospho-tungstic acid, silico-tungstic acid, etc., or their salts, but these are not usually fast to light. Fast colour lakes can be obtained by treating basic dyestuffs with components capable of forming complex tungstic acids, other than those containing molybdenum if the process is carried out in the presence of comparatively strong acids which do not take part in the reaction, such as hydrochloric, sulphuric, nitric, oxalic, trichloracetic, or formic acids, or acid sulphates.

265,033. Condensation Products from Phenols and Formaldehyde, Manufacture of. E. J. P. C. de Jarny, 16, Rue de la Marne, Brie sur Marne (Seine), France. Application date, March 30, 1926.

In the manufacture of moulded articles from bakelite, machining after moulding is usually necessary, owing to the readily fusible nature of the intermediate product, and the fact that only articles can be moulded which are freely removable from the mould. It is now found that if 25–30 per cent. of calcium chloride is employed in making the condensation product, the mass remains malleable at all polymerising stages before the final one. The product can be rolled like a natural rubber gum, and can be forced by pressure into moulds. Filling materials can be incorporated at any stage without the aid of a solvent. In making the condensation product, the calcium chloride may be dissolved in formaldehyde, and the solution added to phenol. Condensation is effected at 110° C.

Note.—Abstracts of the following specifications which are now accepted, appeared in The Chemical Age when they became open to inspection under the International Convention :—242,306 (A. Zinke), relating to manufacture of dyestuffs, see Vol. XIV, p. 58 ; 250,581 (New Jersey Zinc Co.), relating to zinc sulphide pigment, see Vol. XIV, p. 579 ; 252,394 (British Thomson-Houston Co., Ltd.), relating to preparation of resinous condensation products, see Vol. XV, p. 141.

International Specifications not yet Accepted

263,200. Dyes. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 18, 1925. Addition to 242,620.

Specification 242,620 (see The Chemical Age, Vol. XIV, p. 58) describes the preparation of vat dyes by treating benzanthrone-Bz1-thioethers with alkaline condensing agents. In this invention, the former are replaced by oxidation products of benzanthrone-thioethers which have a sulphoxide or sulphone character. In an example, Bz1-benzanthronyl-methyl-sulphide is oxidised with ammonium persulphate in sulphuric acid solution, and the product treated with caustic potash and alcohol on the water bath to obtain a violet vat dyestuff.

263,494. Dyes. I. G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 22, 1925.

Pyrazoleanthrone or its nuclear substitution products are treated with alkylating agents, and then with alkaline condensing agents to obtain red vat dyestuffs.

263,730. Recovering Metal Compounds. Litharge Recovery Corporation, 111, Devonshire Street, Boston, U.S.A. International Convention date, December 26, 1925.

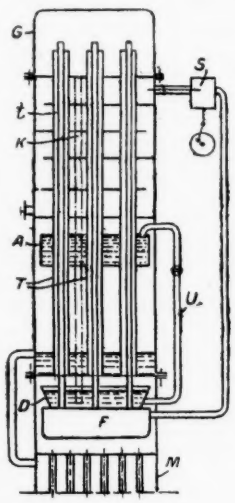
The sludges obtained in the purification of hydrocarbon oils by means of metal salts are treated for recovery of metal compounds by heating and either centrifuging or allowing to settle and separating the different layers. According to an example the sludge produced by treating an oil with sulphuric acid and then with alkaline sodium plumbite is so treated, lead sulphide being recovered by filtration from the spent plumbite solution which separates. The stratification and filtration are assisted if there is added a coagulant such as ferric sulphate or other soluble salts of aluminium, magnesium, copper, chromium, iron, cobalt, manganese, nickel, or zinc, or an acid such as formic or sulphuric acid.

263,758. Catalysts. Deutsche Gasglühlicht-Auer-Ges., 11, Ehrenbergstrasse, Berlin. International Convention date, December 29, 1925.

Catalytic masses for gas reactions contain a substance or substances which will break up the masses under the influence of catalyst poisons present in the gases and thus indicate the exhaustion of the catalyst either by the presence of dust in the reaction products or by the increased resistance to the passage of the gases. An example is given of an oxidation catalyst consisting of a mixture of oxides, together with lime, moulded under pressure ; the absorption of water by the lime causes disintegration of the catalyst.

263,732. SEPARATING GAS MIXTURES. Soc. L'Air Liquide, Soc. Anon. pour l'Etude et l'Exploitation des Procédés G. Claude, 48, Rue St. Lazare, Paris. International Convention date, December 24, 1925.

When separating hydrogen from gas mixtures by partial liquefaction the separated hydrogen is first used to cool and



263,732

condense incoming gases, is then expanded to produce a cooling effect, and is finally used again to cool the gases still further. The gases may be passed into a separating column M in the lower part of which methane, etc., is condensed. They are then further condensed in the tubes T, the liquid being collected at D and passed by the tube U to the vessel A, from which it flows down round the tubes. The purified gas flows back by the tubes *t* and the compartment F to the expansion arrangement S, and thence around the upper part of the tubes T. For treating water-gas the lower set of tubes can be omitted, the gas entering directly around F.

263,773. PYRAZOLONES. C. Mannich, 3, Marienstrasse, Frankfort-on-Main, Germany. International Convention date, December 31, 1925.

Pyrazolones which have antipyretic and analgesic properties are produced by alkylating or aralkylating cyclotrimethylene-aryl-pyrazolones. Examples are given according to which: (1) 1-phenyl-3 : 4-cyclotrimethylene-5-pyrazolone is methylated, ethylated, or benzylated in the 2-position with dimethyl sulphate, ethyl bromide, or benzyl chloride respectively; (2) the corresponding *p*-tolyl compound is ethylated; (3) the *p*-bromphenyl compound is treated with bromallylbromide. The 1-aryl-3 : 4-cyclotrimethylene-5-pyrazolones are obtained by condensing the corresponding arylhydrazines with β-ketopentamethylenecarboxylic acid ethyl ester.

263,779 and 263,780. HYDROFLUOSILICIC ACID AND ITS SALTS. W. Möller Reinbek, Wentorf, Hamburg, and W. Kreth, 18, Woldsenweg, Hamburg, Germany. International Convention date, December 23, 1925.

263,779. Concentrated solutions of hydrofluosilicic acid are produced by treating silicon fluoride with water in a chamber provided with a horizontal rotating spindle carrying discs which dip into the liquid. The layer of liquid in contact with the gas is thus kept cool and free from silicic acid. The latter may be removed by connecting the reaction chamber to a settling tank.

263,780. Readily soluble metal silicofluorides are prepared in a crystalline condition by adding to a concentrated solution of hydrofluosilicic acid a soluble salt of the metal in question in large excess sufficient to form the silicofluoride and to salt it out. Calcium chloride, copper chloride, calcium nitrate, and magnesium nitrate are suitable salts and are preferably added in the solid condition.

263,795. DYES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 23, 1925.

According to this specification, which is a Patent of Addition to 263,178 and 263,179 (see THE CHEMICAL AGE, Vol. XVI, page 217), the anthraquinonethiomorpholines described in those specifications are converted into brown and green acid-dyestuffs by sulphonation. The parent materials specified are the thiomorpholines from *o*-aminoanthraquinonethiohydrin, 1 : 4-diaminoanthraquinone-2 : 3-thiohydrin, and 1 : 5-diaminoanthraquinone-2 : 6-dithiohydrin; with oleum 1-amino-4-*p*-toluidoanthraquinone-2-thiohydrin yields the thiomorpholine sulphonic acid directly.

263,816. AZO-DYES. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, December 23, 1925.

These are prepared by coupling 5-nitro-2-aminophenol or its 4-chlor-derivative with 1-2¹-oxy-3¹-carboxy-5¹-sulphophenyl-3-methyl-5-pyrazolone or the corresponding 3-carboxylic acid or its ethyl ester. They dye wool in yellowish or reddish-brown shades changed to fast bluish-red to red shades by after-chroming; they also yield fast red tints when chrome-printed on cotton.

LATEST NOTIFICATIONS.

266,311. Process of converting coal into hydrocarbons. Gaertner, Dr. A. February 18, 1926.
266,313. Process for the production of base-interchanging substances. Rosenheim, A. February 16, 1926.
266,346. Manufacture of new aliphatic auromercapto carboxylic acids. Chemische Fabrik auf Actien (vorm. E. Schering). February 17, 1926.
266,358. Manufacture of condensation products of arylamines. Haller, P. February 17, 1926.
266,363. Priming wood and other supports. I. G. Farbenindustrie Akt.-Ges. February 17, 1926.
266,378. Manufacture and production of urea. I. G. Farbenindustrie Akt.-Ges. February 19, 1926.
266,381. Supplying pulverulent fuels to internal-combustion engines. I. G. Farbenindustrie Akt.-Ges. February 20, 1926.
266,382. Manufacture of vat-dyestuffs of the 2-thionaphthene-2¹-indolindigo series. I. G. Farbenindustrie Akt.-Ges. February 20, 1926.
266,387. Process for producing combined shades from sulphur dyes and ice-colours on vegetable fibre. I. G. Farbenindustrie Akt.-Ges. February 22, 1926.
266,388. Process for obtaining diazo-sulphamic acids of the cyclic series. I. G. Farbenindustrie Akt.-Ges. February 22, 1926.
266,389. Process for the treatment of condensation products of carbamide or its derivatives with formaldehyde. Pollak, F. October 1, 1924.

Specifications Accepted with Date of Application

242,986. Reactivating adsorption media, Process and apparatus for. Metallbank und Metallurgische Ges., Akt.-Ges. November 12, 1924.
244,107. Conversion of heavy into lighter hydrocarbons. Deutsche Erdol Akt.-Ges. December 2, 1925.
254,674. Process of working up acid resins into neutral bitumens. F. Wilhelm. November 26, 1925.
255,428. Process for separating mixtures of volatile hydrocarbons. De Bataafsche Petroleum Maatschappij and J. H. C. de Brey. July 14, 1925.
255,886. Production of amide acid sulphates from nitriles. Roessler and Hasslacher Chemical Co. July 22, 1925.
262,404. Process of recovering volatile organic substances from gas mixtures. I. G. Farbenindustrie Akt.-Ges. December 3, 1925.
262,423. Apparatus for manufacture and delivery of hydrocyanic acid gas. H. Laine. December 5, 1925.
265,641. New aromatic compounds and new dyestuffs therefrom, Manufacture of. A. J. Ransford. (*L. Cassella and Co.*) August 7, 1925.
265,672. Electrolytic oxidation of organic compounds. C. H. Field. November 7, 1925.
265,674. Filtration. H. S. Hele-Shaw and J. A. Pickard. November 9, 1925.
265,677. Acetylenation of fatty and other substances. Process for. L. Bourgoin. November 9, 1925.
265,767. New monoazo dyestuffs. Manufacture of. W. Carpmael. (*I. G. Farbenindustrie Akt.-Ges.*) January 30, 1926.
265,777. Organic auromercapto acids, and salts thereof. Process for the manufacture of. W. Carpmael. (*Chemische Fabrik auf Actien vorm. E. Schering.*) February 15, 1926.

265,833. Electrolytic separation of chromium, Process for. R. Appel. May 17, 1926.

265,857. Sulphuric acid. Manufacture of. R. Gallardo y de Sotto. July 20, 1926.

265,880. Metal compounds. Process of producing. A. F. Meyerhofer. May 28, 1926.

Applications for Patents

Beckett, E. G., Harris, J. E. G., Scottish Dyes, Ltd., Thomas, J. and Wylam, B. Sulphuro-anhydride compounds. 5,398. February 25.

Bloomfield, A. L., Boake, Roberts, and Co., Ltd., A., and Gower, C. F. Manufacture of acyl halides. 5,330, 5,331. February 25.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Converting cyannaphthalene-sulphonic acids, etc. 4,887. February 21.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of alkali iodates. 5,045. February 22.

Carpmael, W., and I. G. Farbenindustrie Akt.-Ges. Manufacture of compounds containing active oxygen. 5,046. February 22.

Coley, H. E. Apparatus for manufacture of gas. 5,229. February 24.

Collin Akt.-Ges. zur Verwertung von Brennstoffen und Metallen, F. J. Method of discharging ammonia sulphate from saturating-tanks. 4,881. February 21.

Du Pont de Nemours and Co., E. I., and Nobel Industries, Ltd. Manufacture of nitrocellulose compositions. 3,265. February 24.

Farnell, R. G. W. Extraction of sugar from beet. 5,071. February 23.

Humphrey, H. A., and Synthetic Ammonia and Nitrates, Ltd. Production of methane. 4,942. February 22.

Humphrey, H. A., and Synthetic Ammonia and Nitrates, Ltd. Production, etc., of semi-coke, etc. 4,943. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Process for production of benzanthrone derivatives. 4,841. February 21.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of liquid hydrocarbons from olefines. 5,017, 5,018. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of hydrated chromic chloride. 5,019. February 22. (July 22, 1926.)

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of n-dihydro-1.2.1^1.2^1. anthraquinoneazine, etc. 5,020. February 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of coloured masses. 5,253. February 24.

I. G. Farbenindustrie Akt.-Ges. Supplying pulverulent fuels to internal-combustion engines. 4,840. February 21. (Germany, February 20, 1926.)

I. G. Farbenindustrie Akt.-Ges. Manufacture of dyestuffs. 4,844. February 21. (Germany, February 20, 1926.)

I. G. Farbenindustrie Akt.-Ges. Dyeing, etc., vegetable fibres. 5,008. February 22. (Germany, February 22, 1926.)

I. G. Farbenindustrie Akt.-Ges. Diazo-sulphamic acids. 5,009. February 22. (Germany, February 22, 1926.)

I. G. Farbenindustrie Akt.-Ges. Treatment of crude nitrate of soda. 5,251. February 24. (Germany, February 24, 1926.)

I. G. Farbenindustrie Akt.-Ges. Photographic silver-halide emulsions. 5,372. February 25. (Germany, May 14, 1926.)

I. G. Farbenindustrie Akt.-Ges. Treatment of crude nitrates of soda. 5,378. February 25. (Germany, February 25, 1926.)

Imray, O. Y., and Soc. of Chemical Industry in Basle. Manufacture of aromatic tetrahydronaphthylamine derivatives. 5,245. February 24.

Kunstharzfabrik Dr. F. Pollak Ges. Manufacture of phenol-formaldehyde condensation products. 5,171. February 23. (Austria, March 17, 1926.)

Mallabar, H. J., and Non-Inflammable Film Co., Ltd. Production of films of cellulose esters. 5,272. February 24.

Mallabar, H. J., and Non-Inflammable Film Co., Ltd. Manufacture of composite glass. 5,273. February 24.

Oliver Continuous Filter Co. Pulp thickeners, etc. 5,146. February 23. (June 11, 1926.)

Pollak, F. Condensation products of carbamide with formaldehyde. 5,058. February 22. (Austria, October 1, 1924.)

Silica Gel Corporation. Refrigerators. 5,412. February 25. (United States, February 26, 1926.)

Slade, R. E., and Synthetic Ammonia and Nitrates, Ltd. Steam distillation of coal, etc. 4,788. February 21.

Soc. Chimique des Usines du Rhône. Colouring cellulose esters, etc. 5,381. February 25. (France, August 3, 1926.)

Suida, H. Recovery of acetic acid, etc. 4,916. February 21. (Austria, July 31, 1926.)

Urbain, E. Producing hydrogen and phosphoric acid. 5,295. February 24. (France, December 7, 1926.)

Urbain, E. Simultaneously producing water gas, phosphoric acid, and high-alumina cement. 5,296. February 24. (France, January 20.)

Soda Lakes in Canada

Report by Department of Mines

THE High Commissioner for Canada in London has received from the Mines Branch of the Dominion Department of Mines at Ottawa, the following statement prepared by Mr. H. F. Goudge :—

The crystal soda manufactured by chemical works, and commonly known as washing soda, is a familiar product. Natron, which is the natural crystal soda of the same chemical composition, occurs in considerable quantity in British Columbia, in small, undrained lakes. Practically all of the soda lakes of commercial importance, eleven in number, are situated within an area of about thirty square miles. This area is about ten miles north of Clinton, and is traversed by the Pacific Great Eastern Railway. The majority of the lakes are within four miles of the railroad, and all except two are within thirteen miles. The lakes are small, ranging from five to thirty-five acres in area. The depth of brine in the lakes containing the greater amounts of soda does not exceed three and a half feet. The available tonnage of natron in nine of the lakes examined is, on a preliminary estimate, about 200,000 tons. The largest single deposit contains about 70,000 tons.

In all except two of the lakes the soda is in solution during the greater part of the year, but when the concentrated brine is chilled by the cool autumn weather the soda crystallises out in the form of natron. If the brine were not chilled and concentration by solar evaporation were to continue, the resulting deposit would be the mineral trona, a mixture of the carbonate and bicarbonate. This is the usual form in which soda occurs in natural deposits throughout the world.

The natron deposited each autumn forms in a bed from three to ten inches in thickness over practically the whole of the lake in most cases. It is very pure, containing as a rule less than one per cent. impurities. This material is suitable for marketing as washing soda. It must be harvested during the autumn or winter, preferably the autumn, for then it is not contaminated with other salts that are later deposited from the brine. With the coming of spring this natron crystal redissolves.

In two of the lakes, the soda is in crystalline form the year round. The crystals occur in large hemispherical masses in the muddy bottom of one of the lakes and as individual crystals disseminated through the mud in the other. This crystal is of the same composition as the surface crystal, but of course is much contaminated with mud.

In addition to the lakes mentioned, there are numerous other alkaline lakes on the plateau containing sodium carbonate in solution, but not at present in such proportions that any is precipitated during the cold weather. These lakes are annually lessening in volume and may yield soda in the future.

Analyses and further details regarding the material in these lakes are given, under the title "Sodium Carbonate in British Columbia," in Sec. V. of Mines Branch Report on Investigations of Mineral Resources, 1924 (No. 642), issued in 1926 by the Department of Mines, Ottawa, Canada.

Copies of a Special Report of the Department of Mines, dealing with Sodium Sulphate in Western Canada, can also be obtained on application to the Mines Branch at Ottawa, or to the Natural Resources and Industrial Information Branch, The Canadian Building, Trafalgar Square, London, S.W.1.

Power Alcohol in Queensland

WORK in connection with the erection and equipment of the first factory for the manufacture of power alcohol on the Queensland sugar fields is well advanced. The first unit is being attached to the Plane Creek sugar mill at Sarina, 26 miles south of Mackay, while plans are ready for the establishment of two additional factories in North Queensland. It is hoped to open the Sarina plant this month. The company engaged in the enterprise has a nominal capital of £1,000,000, and is a combination of sugar-growers and the Distillers' Co., Ltd., of Scotland. The sugar-growers have a controlling interest, and have the advantage of the knowledge of the leading distillery chemists of the world. It is proposed to manufacture power alcohol from molasses and cassava, a tuberous root plant, which has been imported from Java, and which in Queensland produces a luxuriant growth.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £34 per ton; powder, £36 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, packages extra, returnable.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 12s. 6d. to £5 17s. 6d. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.r. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6d. to 6½d. per lb. Crude 60's, 1s. 8d. to 2s. per gall.

ACID CRESYLIC 99/100.—2s. 3d. to 2s. 4d. per gall. Steady. 97/99.—2s. to 2s. 3d. per gall. Pale, 95%, 1s. 10d. to 2s. 2d. per gall. Dark, 1s. 9d. to 2s. 1d. per gall.

ANTHRACENE.—A quality, 2½d. to 3d. per unit. 40%, 3d. per unit.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.; both according to gravity.

BENZOLE.—Crude 65's, 1s. 2½d. to 1s. 3½d. per gall., ex works in tank wagons. Standard Motor, 1s. 11d. to 2s. 4d. per gall., ex works in tank wagons. Pure, 2s. 2d. to 2s. 6d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 11½d. to 2s. 3d. per gall. Firm. Pure, 2s. 2½d. to 3s. per gall.

XYLOL.—2s. 3d. to 3s. per gall. Pure, 4s. per gall.

CREOSOTE.—Cresylic, 20/24%, 10½d. per gall. Standard specification, 6¾d. to 9d.; middle oil, 7½d. to 8d. per gall. Heavy, 8½d. to 9d. per gall.

NAPHTHA.—Crude, 9½d. to 1s. 0½d. per gall. according to quality. Solvent 90/160, 2s. to 2s. 1d. per gall. Solvent 95/160, 1s. 9d. to 1s. 10d. per gall. Solvent 90/190, 1s. 3½d. to 1s. 4d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £8 per ton. Whizzed or hot pressed, £8 10s. to £9 per ton.

NAPHTHALENE.—Crystals, £11 10s. to £12 10s. per ton. Quiet. Flaked, £12 10s. per ton, according to districts.

PITCH.—Medium soft, 97s. 6d. to 120s. per ton, according to district.

PYRIDINE.—90/140, 9s. 6d. to 13s. per gall. Nominal. 90/180, 7s. 6d. per gall. Heavy, 5s. to 8s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—8s. per lb.

ACID H.—3s. 3d. per lb. 100% basis d/d.

ACID NAPHTHIONIC.—1s. 6d. per lb. 100% basis d/d.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb. 100% basis d/d.

ACID SULPHANILIC.—9d. per lb. 100% basis d/d.

ANILINE OIL.—7d. per lb. naked at works.

ANILINE SALTS.—7d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—4d. per lb.

m-CRESOL 98/100%.—2s. 8¾d. per lb.

p-CRESOL 32/34° C.—2s. 8¾d. per lb.

DICHLORANILINE.—2s. 3d. per lb.

DIMETHYLANILINE.—2s. per lb. d/d. Drums extra.

DINITROBENZENE.—9d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—11d. to 1s. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb. d/d.

B-NAPHTHYLAMINE.—3s. per lb. d/d.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 9d. per lb. d/d.

NITROBENZENE.—7d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb. d/d.

R. SALT.—2s. 4d. per lb. 100% basis d/d.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—7½d. per lb. naked at works.

p-TOLUIDINE.—2s. 2d. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £9 5s. per ton. Good demand. Grey, £15 10s. per ton. Liquor, 9d. per gall. 32° Tw.

CHARCOAL.—£7 to £10 per ton, according to grade and locality. Quiet.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 1s. per gall. 16° Tw.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—4s. per gall., 60% O.P. Solvent, 4s. 3d. per gall., 40% O.P. Both in good demand.

WOOD TAR.—£4 to £5 10s. per ton and upwards, according to grade. Better demand.

BROWN SUGAR OF LEAD.—£41 to £42 per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6d. to 1s. 5½d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—2s. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£46 to £55 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 2d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¼d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton f.o.r London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb. carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—5s. 3d. per lb.

ZINC SULPHIDE.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

Acid, Acetic, Pure, 80%.—£39 per ton ex wharf London in glass containers.

Acid, Acetyl Salicylic.—2s. 4d. to 2s. 5d. per lb. Brisk.

Acid, Benzoic B.P.—2s. to 2s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz.; 500 oz. lots, 1s. per oz.

Acid, Boric B.P.—Crystal, £41 per ton; powder, £45 per ton. Carriage paid any station in Great Britain, in ton lots.

Acid, Camphoric.—19s. to 21s. per lb.

Acid, Citric.—1s. 3½d. to 1s. 4½d. per lb., less 5%. Better conditions.

Acid, Gallic.—2s. 8d. per lb. for pure crystal, in cwt. lots.

Acid, Pyrogallic, Crystals.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

Acid, Salicylic, B.P.—1s. 4d. to 1s. 6d. per lb. Technical.—11¾d. to 1s. per lb.

Acid, Tannic B.P.—2s. 9d. to 2s. 11d. per lb.

Acid, Tartaric.—1s. 1¾d. per lb., less 5%. Firmer.

Amidol.—9s. per lb., d/d.

Acetanilide.—1s. 6d. to 1s. 8d. per lb. for quantities.

Amidopyrin.—11s. 3d. to 11s. 6d. per lb.

Ammonium Benzoate.—3s. 3d. to 3s. 6d. per lb., according to quantity.

Ammonium Carbonate B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: lump, 1s. per lb.; powder, 1s. 3d. per lb.

Atropine Sulphate.—11s. per oz. for English make.

Barbitone.—8s. 9d. per lb.

Benzonaphthol.—3s. 3d. per lb. spot.

Bismuth Carbonate.—12s. 3d. to 14s. 3d. per lb.

Bismuth Citrate.—9s. 3d. to 11s. 3d. per lb.

Bismuth Salicylate.—10s. to 12s. per lb.

Bismuth Subnitrate.—10s. 6d. to 12s. 6d. per lb., all above bismuth salts, according to quantity.

Bismuth Nitrate.—6s. 9d. per lb.

Bismuth Oxide.—13s. 9d. per lb.

Bismuth Subchloride.—11s. 9d. per lb.

Bismuth Subgallate.—9s. 9d. per lb.

Borax B.P.—Crystal, £24 per ton; powder, £25 per ton. Carriage paid any station in Great Britain, in ton lots.

Bromides.—Potassium, 1s. 10d. to 1s. 11d. per lb.; sodium, 2s. to 2s. 2d. per lb.; ammonium, 2s. 3d. to 2s. 4d. per lb., all spot.

Calcium Lactate.—1s. 4d. to 1s. 5d.

Chloral Hydrate.—3s. 2d. to 3s. 5d. per lb., duty paid.

Chloroform.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

Creosote Carbonate.—6s. per lb.

Ether Meth.—1s. 1d. to 1s. 11½d. per lb., according to sp. gr. and quantity. Ether purif. (Aether B.P., 1914), 2s. 3d. to 2s. 4d., according to quantity.

Formaldehyde.—£39 per ton, in barrels ex wharf.

Guaiacol Carbonate.—6s. 6d. to 7s. per lb.

Hexamine.—2s. 4d. to 2s. 6d. per lb.

Homatropine Hydrobromide.—30s. per oz.

Hydrastine Hydrochloride.—English make offered at 120s. per oz.

Hydrogen Peroxide (12 vols.).—1s. 5d. per gallon f.o.r. makers' works, naked.

Hydroquinone.—4s. per lb., in cwt. lots.

Hypophosphites.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

Iron Ammonium Citrate B.P.—2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.

Iron Perchloride.—22s. per cwt., 112 lb. lots.

Magnesium Carbonate.—Light Commercial, £33 per ton net.

Magnesium Oxide.—Light Commercial, £67 10s. per ton, less 2½%; Heavy Commercial, £22 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.

Menthol.—A.B.R. recrystallised B.P., 18s. 9d. per lb. net; Synthetic, 10s. 6d. to 12s. per lb., according to quantity; 10s. 6d. for 1 cwt. lots and upwards; Liquid (95%), 12s. per lb.; Detached Cryst., 14s. 6d. per lb.

Mercurials.—Red Oxide, 6s. 5d. to 6s. 7d. per lb., levig., 6s. 1d. per lb.; Corrosive Sublimate, Lump, 4s. 3d. per lb., Powder, 4s. 11d. per lb.; White Precipitate, 5s. 1d. per lb., Powder, 5s. 1d. per lb., Extra Fine, 5s. 1d. to 5s. 2d. per lb.; Calomel, 5s. 3d. to 5s. 5d. per lb.; Yellow Oxide, 5s. 10d. to 5s. 11d. per lb.; Persulph., B.P.C., 5s. 1d. to 5s. 2d. per lb.; Sulph. nig., 4s. 10d. to 4s. 11d. per lb.

Methyl Salicylate.—1s. 9d. per lb.

Methyl Sulphonal.—15s. to 15s. 3d. per lb.

Metol.—11s. per lb. British make.

Paraformaldehyde.—1s. 9d. per lb. for 100% powder.

Paraldehyde.—1s. 4d. per lb.

Phenacetin.—3s. 9d. to 4s. per lb.

Phenazone.—5s. 9d. to 6s. per lb.

Phenolphthalein.—6s. to 6s. 3d. per lb.

Potassium Bitartrate 99/100% (Cream of Tartar).—90s. per cwt., less 2½% for ton lots.

Potassium Citrate.—1s. 11d. to 2s. 2d. per lb.

Potassium Ferricyanide.—1s. 9d. per lb., in cwt. lots.

Potassium Iodide.—16s. 8d. to 17s. 2d. per lb. for 1 cwt. lots.

Potassium Metabisulphite.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

Potassium Permanganate.—B.P. crystals, 6d. per lb., spot.

Quinine Sulphate.—2s. per oz., 1s. 8d. to 1s. 9d. for 1000 oz. lots in 100 oz. tins.

Resorcin.—4s. per lb., spot.

Saccharin.—55s. per lb.

Salol.—3s. to 3s. 3d. per lb.

Sodium Benzoate, B.P.—1s. 10d. to 2s. 2d. per lb.

Sodium Citrate, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb. B.P.C., 1923—2s. to 2s. 1d. per lb. for 1 cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.

Sodium Ferrocyanide.—4d. per lb. carriage paid.

Sodium Hyposulphite, Photographic.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

Sodium Nitroprusside.—16s. per lb.

Sodium Potassium Tartrate (Rochelle Salt).—77s. 6d. to 85s. per cwt., according to quantity.

Sodium Salicylate.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

Sodium Sulphide, pure recrystallised.—10d. to 1s. 2d. per lb.

Sodium Sulphite, anhydrous, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

Sulphonal.—10s. to 10s. 3d. per lb.

Tartar Emetic, B.P.—Crystal or powder, 2s. to 2s. 1d. per lb.

Thymol.—Puriss., 11s. 3d. to 12s. 6d. per lb., according to quantity. Firmer. Natural, 14s. 9d. per lb. Cheaper.

Perfumery Chemicals

Acetophenone.—7s. 3d. per lb.

Aubepine (ex Anethol).—10s. 3d. per lb.

Amyl Acetate.—2s. per lb.

Amyl Butyrate.—5s. 6d. per lb.

Amyl Salicylate.—3s. per lb.

Anethol (M.P. 21/22° C.).—5s. 6d. per lb.

Benzyl Acetate from Chlorine-free Benzyl Alcohol.—2s. per lb.

Benzyl Alcohol free from Chlorine.—2s. per lb.

Benzaldehyde free from Chlorine.—2s. 6d. per lb.

Benzyl Benzoate.—2s. 3d. per lb.

Cinnamic Aldehyde Natural.—18s. per lb.

Coumarin.—10s. 9d. per lb.

Citronellol.—15s. per lb.

Citral.—9s. 6d. per lb.

Ethyl Cinnamate.—10s. per lb.

Ethyl Phthalate.—3s. 3d. per lb.

Eugenol.—9s. 6d. per lb.

Geraniol (Palmarosa).—19s. per lb.

Geraniol.—6s. 6d. to 10s. 6d. per lb.

Heliotropine.—4s. 10d. per lb.

Iso Eugenol.—13s. 6d. per lb.

Linalol.—Ex Shui Oil, 12s. per lb. Ex Bois de Rose, 16s. per lb.

Linalyl Acetate.—Ex Shui Oil, 14s. 6d. per lb. Ex Bois de Rose. 18s. per lb.

Methyl Anthranilate.—9s. per lb.

Methyl Benzoate.—4s. 6d. per lb.

Musk Ketone.—36s. per lb.

Musk Xylol.—8s. 6d. per lb.

Nerolin.—3s. 9d. per lb.

Phenyl Ethyl Acetate.—12s. per lb.

Phenyl Ethyl Alcohol.—11s. per lb.

Rhodinol.—28s. 6d. per lb.

Safrol.—1s. 6d. per lb.

Terpineol.—1s. 6d. per lb.

Vanillin.—17s. to 19s. per lb.

Essential Oils

Almond Oil.—11s. 6d. per lb.

Anise Oil.—3s. 3d. per lb.

Bergamot Oil.—30s. per lb.

Bourbon Geranium Oil.—11s. 3d. per lb.

Camphor Oil.—63s. 6d. per cwt.

Cananga Oil, Java.—20s. per lb.

Cinnamon Oil, Leaf.—6d. per oz.

Cassia Oil, 80/85%.—8s. 9d. per lb.

Citronella Oil.—Java, 85/90%, 2s. 3d. per lb. Ceylon, pure, 1s. 10d. per lb.

Clove Oil.—6s. per lb.

Eucalyptus Oil, 70/75%.—2s. per lb.

Lavender Oil.—Mont Blanc 38/40%. Esters, 20s. 9d. per lb.

Lemon Oil.—9s. 6d. per lb.

Lemongrass Oil.—4s. 6d. per lb.

Orange Oil, Sweet.—10s. 6d. per lb.

Otto of Rose Oil.—Bulgarian, 70s. per oz. Anatolian, 30s. per oz

Palma Rosa Oil.—9s. 6d. per lb.

Peppermint Oil.—Wayne County, 20s. 9d. per lb. Japanese, 8s. 6d. per lb.

Petitgrain Oil.—8s. 3d. per lb.

Sandalwood Oil.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, March 3, 1927.

BUSINESS has remained active during the current week, and the volume of inquiry is increasing. Prices all round remain firm and advancing. Export section has been a little brighter.

General Chemicals

ACETONE is still in steady demand at £58 per ton, ex store.

ACID ACETIC.—There is more inquiry, especially for export, and prices remain unchanged at conventional figures.

ACID CITRIC.—Price has advanced to 1s. 4d. and market is very firm.

ACID FORMIC.—There is increased demand, and price is still maintained.

ACID LACTIC.—Price unchanged, and still in good demand.

ACID TARTARIC.—There has been a sharp advance, and manufacturers are now asking 1s. 1d., less 5% c.i.f.

ALUMINA SULPHATE.—There is a little more demand, and price is steady at £6 5s. for 17–18%.

AMMONIUM CHLORIDE.—There is a little more demand. Price remains unchanged at £19 10s. to £19 15s.

COPPER SULPHATE.—Unchanged at £24–£24 10s.

CREAM OF TARTAR.—Has again advanced, and supplies are short. Demand is good, and it is expected that the price will reach £90 to £92 per ton shortly.

EPSOM SALTS.—Unchanged at £5 10s. per ton.

FORMALDEHYDE.—Quiet, price unchanged at £42-£43 per ton.

LEAD ACETATE is still very firm at £44 10s. to £45 for white, and £43 for brown.

METHYL ACETONE.—Unchanged.

METHYL ALCOHOL.—Unchanged.

POTASSIUM CHLORATE is still firm, and in short supply at 3½d. per lb.

POTASSIUM PERMANGANATE.—Nominal at 7½d. per lb. for B.P.

POTASSIUM PRUSSIATE.—Still in short supply at 7½d. per lb.

SODIUM ACETATE.—Demand remains fair, and price unchanged at £19–£19 10s. per ton.

SODIUM BICHROMATE.—Unchanged at British makers' figures.

SODIUM HYPOSULPHITE.—Position remains unchanged.

SODIUM NITRITE.—Demand is slightly better, and price unchanged at £19 10s. per ton.

SODIUM PRUSSIATE.—Still very firm at 4¾d. per lb.

SODIUM SULPHIDE.—Unchanged at British makers' prices.

ZINC SULPHATE.—Unchanged at £14 per ton.

Coal Tar Products

The market for coal tar products remains steady, with little change to report from last week.

90's BENZOL is worth about 1s. 9½d. per gallon, on rails, while the motor quality is quoted at about 1s. 8¾d. per gallon.

PURE BENZOL is quoted at from 2s. 9d. to 3s. per gallon.

CREOSOTE OIL is unchanged, and is quoted at 7¼d. to 7½d. per gallon on rails in the country, while the price in London is about 8¼d. to 8¾d. per gallon.

CRESYLIC ACID remains steady at 2s. per gallon, on rails, for the pale quality 97/99%, while the dark quality 95/97% is worth about 1s. 11d. per gallon.

SOLVENT NAPHTHA is unchanged, and is worth about 1s. 5d. per gallon, on rails.

HEAVY NAPHTHA is quoted at 1s. 2d. to 1s. 3d. per gallon, on rails.

NAPHTHALENES are unchanged, the 76/78 quality being worth about £8 5s. to £8 15s. per ton, while the 74/76 quality is worth about £7 15s. to £8 per ton.

PITCH is unchanged and the price remains at 120s. to 130s. per ton, f.o.b. U.K. port.

Latest Oil Prices

LONDON.—March 2.—LINSEED OIL steady at 2s. 6d. to 5s. higher. Spot, £33, ex mill; February, £31 7s. 6d.; March-April, £31 10s.; May-August, £31 7s. 6d. September-December, £32. RAPE OIL quiet; crude extracted, £46; technical refined, £48, naked, ex wharf. COTTON OIL quiet. Refined common edible, £42; Egyptian crude, £35 10s.; deodorised, £44. TURPENTINE quiet and 1s. 3d. to 1s. per cwt. lower. American, spot, 48s.; April, 48s. 6d.; May-June, 49s. 6d.; and July-December, 50s.

HULL.—March 2.—LINSEED OIL.—Naked, spot, £32; March-April, £31 17s. 6d.; May-August, £31 15s.; September-December, £32 5s. COTTON OIL.—Naked Bombay crude, £34; Egyptian crude, £36; edible refined, £39 10s.; technical, £38; deodorised, £41 10s. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £39 10s.; GROUNDNUT OIL.—Crushed-extracted, £44; deodorised, £48. SOYA OIL.—Extracted and crushed, £34 10s.; deodorised, £38. RAPE OIL.—Crude-extracted, £45 10s.; refined, £47 10s. per ton. CASTOR OIL. Pharmaceutical, 51s.; first, 51s.; second, 48s. per cwt. barrel, net cash terms, ex mill. COD OIL unaltered.

Nitrogen Products

Export.—On account of the continued increase in British production larger surpluses have been available for export and the price has receded to £10 17s. 6d. per ton, f.o.b. U.K. port in single bags. This drop in the price has interested several countries and the Far East has come into the market again. Ample supplies of sulphate of ammonia seem to be available on the Continent, although it is anticipated that Central Europe will suck up enormous quantities. In the United States the market was particularly tight in the South and a firmer tone was indicated throughout. This is due to current production being taken up by contract deliveries and uncertainty when further plentiful supplies will be available.

Home.—The wet weather has retarded the usual early spring demand and February business seems to be smaller than last year. It is expected that the ground lost will be more than recovered in the later months. The price for March/May delivery remains unchanged at £12 6s. per ton for neutral quality, basis 20·6 per cent. nitrogen. It is understood that supplies of ordinary quality are available in several districts. These are being sold at 10s. per ton below neutral prices, basis 20 per cent. nitrogen, no charge if over, *pro rata* allowance if under, other terms the same as for neutral.

Nitrate of Soda.—The nitrate position for the present season remains unchanged with nitrate selling in most consuming countries at prices actually higher per ton than sulphate. There is considerable complication concerning the nitrate situation for the future. It has been announced that an American company are establishing a 5-million-dollar nitrate fixation plant in the south. Reports have been circulated that an improved process for nitrate extraction will effect large economies in production. These developments, together with the expected return of free selling, presage considerable excitement in the fertiliser industry.

New Chile Nitrate Plant

THE new plant recently erected by the Anglo-Chilean Consolidated Nitrate Corporation has now been in operation on a small scale for several months, and is reported to be a complete success. Production on the full scale is looked for in May, when it is stated that the cost f.o.b. Chile will be in the neighbourhood of 10s. per metric quintal, excluding amortisation, but including the present export duty.

MR. K. E. PALMER has been nominated as president of the Institute of Mining and Metallurgy for the ensuing year.

MR. LAMMONT DU PONT, president of Du Pont De Nemours and Co., has been elected a director of the Chemical National Bank of New York.

THE MINISTRY OF HEALTH has addressed to local authorities a circular concerning the provisions and administration of the Public Health (Smoke Abatement) Act of 1926.

MR. LOUIS A. FENN, who is engaged in research at a chemical works in Kendal, has been chosen as the official Labour candidate to oppose Sir Leslie Scott in the Exchange Division of Liverpool.

IN VIEW of the difficulty of finding an efficient and harmless method of cleansing white waterproof coats, the *India-Rubber Journal* has decided to offer a prize of three guineas for the most satisfactory method submitted.

THE BRITISH MOSQUITO CONTROL INSTITUTE has just been registered to undertake experimental and research work in connection with mosquitoes and other noxious insects at the laboratory at Seacourt, Hayling Island, under the direction of Mr. J. F. Marshall.

A FACULTY OF MECHANICAL ENGINEERING and mining chemistry and technique is to be founded in the University of Münster (Westphalia) at a cost of £75,000. A contribution of £50,000 has been promised by the provincial Government, and £25,000 has been received from industrial bodies.

LT.-COL. MOORE-BRABAZON, M.P., and the directors of "L. and N." Coal Distillation, Ltd., all the capital of which has been privately subscribed, are to indicate to industrialists, at a luncheon to be held in London next week, the nature of the company's operations. The company proposes to develop the largest oleiferous coal seam in the world at Morwell, near Melbourne, Australia.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, March 2, 1927.

THE heavy chemical market still shows a fair amount of active inquiry, particularly export, being better than for some little time past. There are no changes of any importance to record, but carbonate of potash has been advanced slightly, and tartaric acid is short for early delivery.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £57 per ton, according to quantity and packing, c.i.f. U.K. ports; 80% pure, £37 10s. per ton, ex wharf; 80% technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystal, granulated or small flakes, £34 per ton; powder, £36 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In little demand, and quoted price reduced to about 6d. per lb., delivered, or f.o.b. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—In good demand, and price now about 1s. 3d. per lb., less 5% ex store. Offered for prompt shipment from the Continent at 1s. 2¾d. per lb., less 5% ex wharf.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy; dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC 80°.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—4d. per lb., ex store, named for some small parcels, but price in any quantity uncertain. Offered from the Continent on a duty paid basis at 3¾d. per lb., ex wharf.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Now quoted 1s. 0½d. per lb., less 5% ex store. Offered for early delivery at a fraction more.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material on offer at about £6 per ton, ex store. Quoted £5 8s. 6d. per ton c.i.f. U.K. ports, prompt shipment from the Continent.

ALUM POTASH.—Lump quality quoted at about £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal powder 5s. per ton less. Spot prices, £9 2s. 6d. and £8 10s. per ton, ex store, respectively.

AMMONIA, ANHYDROUS.—On offer at 9¾d. per lb., ex store. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powder, £39 per ton, packed in 5-cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered, according to quality.

AMMONIA MURIATE.—Grey galvanisers' crystals of English manufacture unchanged at about £23 to £24 per ton, ex station. Continental on offer at £20 15s. per ton, c.i.f. U.K. ports. Fine white crystals of Continental manufacture quoted £18 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material unchanged at about £20 per ton, ex store. Offered for early delivery at £19 per ton, ex wharf.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £8 per ton, c.i.f. U.K. ports, packed in bags. Casks 7s. 6d. per ton extra. Offered on spot at about £9 12s. 6d. per ton, ex store.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers, £8 per ton, ex station, minimum 4-ton lots. Spot material, 10s. per ton extra. Continental now quoted £7 10s. per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £19 10s. per ton; crystals, £20 per ton; powder, £21 per ton, carriage paid U.K. ports.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental rather easier at about £3 15s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or at £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—English material quoted £23 per ton, f.o.b. U.K. ports. Continental on offer at £21 10s. per ton, c.i.f. U.K. ports.

FORMALDEHYDE, 40%.—Quoted £38 10s. per ton, c.i.f. U.K. ports. Spot material available at about £40 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental now quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at about £33 15s. per ton, ex store.

LEAD, WHITE.—Quoted £35 per ton, ex store.

LEAD ACETATE.—White crystals quoted £42 15s. per ton, c.i.f. U.K. ports; brown about £40 5s. per ton, c.i.f. U.K. ports; white crystals on spot, quoted £44 5s. per ton, ex store.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

MAGNESIUM CHLORIDE.—Quoted £6 6s. 6d. per ton, c.i.f. U.K. ports.

POTASH CAUSTIC, 88/92%.—Solid quality unchanged at £27 5s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Smaller quantities, 15s. per ton extra. Liquid, 50° Be, £14 10s. per ton, c.i.f. U.K. ports, minimum 15-ton lots.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb. delivered.

POTASSIUM CARBONATE.—96/98% quoted £25 15s. per ton, ex wharf, early delivery. Spot material available at about £27 per ton, ex store; 90/94% quality quoted at £22 10s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100%.—Powdered quality on offer at £24 5s. per ton, c.i.f. U.K. ports. Crystals, £2 per ton extra.

POTASSIUM NITRATE (SALTPETRE).—On offer from the Continent at £21 per ton, c.i.f. U.K. ports, prompt shipment. Spot material quoted £22 15s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6¾d. per lb., ex store, spot delivery. On offer for early shipment at 6½d. per lb., ex wharf.

POTASSIUM PRUSSIATE (YELLOW).—Offered for early delivery at 7¼d. per lb., f.o.b. U.K. ports, spot material. Quoted 7½d. per lb., ex store.

SODA CAUSTIC.—Powder, 98/99%, £19 7s. 6d.; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station. minimum 4-ton lots on contract. Spot material 10s. per ton extra.

SODIUM ACETATE.—English material quoted £22 10s. per ton, ex store. Continental on offer at about £19 per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¾d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station; powder or pea quality, £1 7s. 6d. per ton more; alkali, 59%, £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 2s. 6d. per ton, ex station, minimum 4-ton lots. Continental quality offered at £8 per ton, ex wharf, prompt shipment, packed in bags. Casks, 10s. per ton extra. Pea crystals, photographic quality, of British manufacture, quoted £14 10s. per ton, ex station.

SODIUM NITRATE.—Ordinary quality quoted £13 per ton, ex store. Refined quality, 5s. per ton extra.

SODIUM NITRITE, 100%.—Spot material now quoted £20 5s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—Offered for prompt shipment from the Continent at 4⅛d. per lb., ex wharf. Spot material on offer at 4¼d. per lb., ex store.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—60/65%, solid, £12 10s. per ton; broken, £13 10s. per ton; flake, £14 10s. per ton; crystals, 31/34%, £8 10s. per ton and £9 per ton, according to quality, delivered buyers' works, minimum 4-ton lots on contract. Price for spot, 5s. per ton extra for solid, 2s. 6d. per ton extra for crystals; 60/62%, solid quality offered from the Continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports; broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 10s. per ton; roll, £11 10s. per ton; rock, £11 10s. per ton; floristella, £11 per ton; ground American, £9 15s. per ton, ex store, prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid, on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered 20s. per ton extra.

ZINC SULPHATE.—Continental material on offer at about £10 10s. per ton, ex wharf.

NOTE.—The above prices are for bulk business, and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

ORTHO TOLUIDINE.—8d. per lb. Some inquiries.

PARANITRANILINE.—1s. 7d. per lb. Some inquiries.

NAPHTHIONIC ACID.—1s. 4½d. per lb. Fair home inquiries.

SULPHANILIC ACID.—9d. per lb. Some inquiries.

BENZIDINE BASE.—3s. 3d. per lb. Some inquiries.

Manchester Chemical Market

(From Our Own Correspondent.)

Manchester, March 3, 1927.

There is still a quietly steady demand for heavy chemical products on the Manchester market at a range of prices which, taking the market as a whole, keep up remarkably well. Textile chemicals are moving off on an improved scale although much below what is normal. Except in the case of several of the leading lines of products, the demand is usually for comparatively small parcels and chiefly for early delivery. Continental countries are still only moderate buyers on this market, most of the export business being with the Colonies and the East.

Heavy Chemicals

For glauber salts the demand is rather quiet with quotations in the neighbourhood of £3 5s. per ton. Caustic soda, however, continues to move off in the usual steady quantities, values ranging from £14 10s. to £16 10s. per ton, according to quality. A fair trade is also being put through in the case of bicarbonate of soda, values of which are fully maintained at round £10 10s. per ton. Saltcake is being offered at about £3 10s. per ton, with inquiry on a moderate scale. Sulphide of sodium is in quiet request and values still have an easy tendency, with 60/65 per cent. concentrated solid on offer at £11 per ton and commercial material at from £8 7s. 6d. to £8 10s. per ton. Bichromate of soda meets with a fair amount of attention at steady prices, 3½d. per lb. still being quoted. Only a quiet business is being done in the case of hyposulphite of soda which, however, continues to be offered at £10 per ton for commercial quality and £15 2s. 6d. for photographic. Chlorate of soda keeps fairly steady at 3d. to 3¼d. per lb., but there is only a quiet trade passing in this. Prussiate of soda is in moderate request, and so far there has been little actual loss of strength, about 4¼d. per lb. still being asked. Bleaching powder is maintained at about £8 per ton and meets with a fair volume of inquiry. Nitrite of soda is quiet but steady at from £19 to £19 5s. per ton. Phosphate of soda is not particularly active, but at about £12 15s. per ton values are held. Alkali is firm and in fairly good demand at round £6 15s. per ton.

Among the potash products there is only a quiet amount of buying interest being shown in yellow prussiate, which is quoted here at from 7⅞d. to 7¼d. per lb. Chlorate of potash, also, is rather inactive, but at 3⅜d. per lb. values are about unaltered. Caustic potash is firm and is moving off in fair quantities at about £29 per ton. There is not a great deal of business offering in the case of permanganate of potash, commercial material being quoted at about 4⅞d. per lb. and B.P. quality at 6d. Bichromate of potash is in fair demand and prices are maintained at 4½d. per lb. Carbonate of potash is held at about £26 5s. per ton and a steady inquiry for this is reported.

There is not much change in the position of arsenic, current demand being on rather quiet lines; about £17 5s. per ton at the mines is being asked for white powdered, Cornish makes. Sulphate of copper meets with a fair inquiry for shipment at £24 7s. 6d. per ton, f.o.b. Acetate of lime keeps fairly steady but demand has been slow this week; brown material is on offer at about £9 per ton and grey at £15 10s. to £15 15s. The lead compounds are maintained but they are still moving off in relatively small quantities; nitrate is quoted at £40 per ton, and acetate at about £44 per ton for white and £40 to £41 for brown.

Acids and Tar Products

The feature of the acids has been the increased firmness in tartaric, offers of which are now round 1s. 1d. per lb., a fair demand being experienced. There is not much stirring, however, in the case of citric acid, but values are about unchanged at 1s. 2¾d. per lb. Acetic acid moves off in moderate quantities at steady prices, about £67 per ton being quoted for glacial and £37 for 80 per cent. commercial quality. Oxalic acid is still on the scarce side and quotations are steady at round 3⅞d. per lb.

Taking the tar products generally there is not much activity to be reported in any section. Pitch remains an easy and fluctuating market at £4 17s. 6d. to £5 per ton, with demand rather quiet. Creosote oil is attracting only a limited amount of attention, quotations for this being at about 7¼d. per gallon. Solvent naphtha is slow and easy at 1s. 7d. per gallon. Carbolic acid is in quiet demand at 6d. to 6¼d. per lb. for crystals.

Allegation of Blood Poisoning Fails

In the Bow County Court on Wednesday, before Judge Snagge, there was an application under the Workmen's Compensation Act, the applicant being Ethel Mary Hope, a widow, of 14, Queen's Road, Plaistow, E.; the respondents being The India Rubber, Gutta Percha and Telegraph Works Co., Ltd., of Silvertown, E. The widow was claiming compensation for the death of her husband, it being alleged that he died on December 6 last year as a result of blood poisoning set up by an accident which occurred to him on November 22, arising out of and in the course of his employment. Mr. Fuller said that the deceased in the course of his employment had to weigh sulphur, whitening, magnesia wax, ebonite dust, chalk, red lead, white lead, and litharge. At times, when he was handling these dangerous chemicals or substances such as lead, sulphur, etc., he wore gloves, but on other occasions he worked with bare hands. On the day in question, November 22, he was working in this way, and he had fixed down with a sharp blow a tight lid of a drum. Of course, it would be understood that these drums would get frayed with constant usage, and therefore it would be rather easy for anyone to prick their hand. Next day the hand was much swollen; so he went and saw his doctor, who at once diagnosed it as blood poisoning. He was constantly attended at the surgery until the day before he died. Evidence was given for the applicant by his widow, and by Drs. D. O'Keefe and McGregor Sharp. For the defence a considerable amount of evidence was given that the deceased had not complained of any accident. Eventually Judge Snagge decided in favour of the respondents, for whom judgment was entered, with costs.

Steel Cartel Results

Figures of production by the five member countries of the International Steel Cartel in the fourth quarter of 1926 show that the total output was 7,922,000 metric tons, or 600,000 tons above the combined production quotas of 7,322,000 tons fixed by the Cartel. Germany produced 575,000 tons more than her quota, Belgium 91,000 tons more, and the Saar district 30,000 tons more, whereas France produced 86,000 tons less than her share, and Luxemburg 10,000 tons less. Under the penalties system the three countries which exceeded their quotas pay to the Cartel funds $4 per ton. At the redistribution of funds Germany will receive back $4,540,000 out of $6,036,000 altogether paid by her, and Belgium $1,215,000 out of $1,302,000 paid by her, whereas France will receive $1,253,000 more than she paid, and Luxemburg $295,000 more. It is understood that France is agreeable to an increase of Germany's quota by 1,000,000 tons on condition that Germany withdraws from the steel export market.

Selby Beet-Sugar Factory

It is announced that work on the site of the Selby Sugar Beet Factory has commenced. The land, which has been purchased from the Olympia Oil and Cake Co., is on the East Riding side of the river, opposite the Selby Shipyard, and the factory is to be built for the Selby Sugar Co., Ltd. The Dyer Co., of Pall Mall, London, are the designers and contractors, and the sub-contractors, now at work on the site, are Sir Robert McAlpine and Sons. The factory will be one of the best equipped in the world, and the sub-contractors will put in a railway siding connecting with the L.N.E.R. line, build the factory, and make the roads. The factory is to be handed over in full working order on October 1. The water supply will be from the town mains, the wells on the site, and the river Ouse. The total volume of water required will amount to two and a half million gallons per day. The town water is required for the final washings, and the Selby Urban Council have offered to supply a quarter of a million gallons per day for four months in the year. The acreage offered to the company for the growing of the beet is considerably in excess of that required. Lincolnshire farmers guaranteed 3,000 acres to start with. The 8,000 acres required were not only secured, but in addition 3,000 acres were offered which could not be accepted.

Company News

UNITED DRUG CO. OF AMERICA.—The net income for the year 1926 amounted to $7,236,217, as compared with $6,222,914 for the previous year.

INTERNATIONAL PAINT AND COMPOSITIONS, LTD.—The directors have decided to recommend a final dividend of 4 per cent. on the ordinary shares, less income tax, making 7 per cent. for the year. The usual half-yearly final preference dividend of 3 per cent. is also recommended, less tax.

JOHN OAKEY AND SONS.—The report for the year ended December 31 last states that the net profits, including £5,492 brought forward, amount to £46,884. The Board recommend a final dividend of 8½ per cent., less income tax, to the ordinary shareholders, making, with the interim dividend of 2½ per cent., a total of 11 per cent. for the year, leaving £13,385, from which £10,000 is to be transferred to general reserve and £3,385 carried forward. The annual meeting will be held at Winchester House, London, on March 9, at 12 noon.

NEW TRANSVAAL CHEMICAL CO.—The report states that the balance standing to the credit of profit and loss account, including £28,686 brought forward, is £57,056, out of which dividends have been paid for the year ended June 30, 1926, on the first preference shares, absorbing £12,000, and on the "A" preference shares, requiring £12,000, leaving a balance of £33,056. The directors recommend the payment of the remuneration of the London board £630 and a dividend of 10 per cent. on the ordinary shares £25,000, leaving to be carried forward £7,426. The annual meeting will be held at Winchester House, London, E.C., on March 11, at 2.30 p.m.

Tariff Changes

COSTA RICA.—A recent Law (No. 33) modifies the Customs duties leviable on certain articles on import into Costa Rica. The new duties, which came into force on February 1, apply to the following:—Chalk, crude calcium carbonate, powdered marble, whitening, paraffin wax, oleic, palmitic and stearic acids, chloride or hypochloride of lime, glucose, liquid carbonic acid, calcium carbide, lubricants for machinery and vehicles, sulphuric acid in iron drums, tar and liquids for preserving wood, copper sulphate, melted sulphur, and sublimate of sulphur. On all these the new duty is 12 cents per kilog.

ITALY.—The Italian *Gazzetta Ufficiale* for February 17 contains a Ministerial Decree, dated February 12, providing for the increase of the Customs import duties, as from February 18, on certain chemicals, including boric acid, borax and borate of soda, chromates and bichromates, chrome alum, chrome sulphate and chromium tanning salts, ultramarine and metallic colours.

MEXICO.—The Mexican *Diario Oficial* for December 23 contains a Decree, dated December 22, which prohibits, for one year, the import into Mexico, and the transit and sale therein, of firearms and cartridges therefor, and of any kind of munitions of war, including gases and any kind of explosives; as well as any kind of chemical products or goods which may be used in warfare. Explosives and chemical products intended for industrial purposes may be imported under licence from the Secretary of War and Marine.

PERU.—A law promulgated on December 22 places a tax of 6 per cent. *ad valorem* on all pharmaceutical preparations imported into Peru from abroad.

New American Nitrogen Fixation Plant

A NITROGEN fixation plant, which, it is said, will be the largest in the world, is to be constructed by the Allied Chemical and Dye Corporation of America. It is estimated that the plant will cost £2,500,000, in addition to £1,000,000 already paid for the site, and a large sum to be devoted to a housing scheme for the prospective employees. The United States imports over 1,200,000 tons of nitrate, or more than half of Chile's export, and it is anticipated that the new plant will render the country to a large extent independent of supplies from abroad, and considerably reduce the cost of fertilisers to the American farmer.

New Chemical Trade Marks

Applications for Registration

This list has been specially compiled for us by Gee & Co., Patent and Trade Mark Agents, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

Opposition to the Registration of the following Trade Marks can be lodged up to March 16, 1927.

"SAPINAL."

472,676. Raw or partly prepared mineral substances being wetting-out agents for use in the course of manufacture. Class 4. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester. Manufacturers of dyestuffs and chemicals. August 31, 1926. (To be Associated. Sect. 24.)

Opposition to the Registration of the following Trade Marks can be lodged up to March 23, 1927.

"RAZENE."

475,340. Dyes for wood and silk. Class 4. Jesse Tantum, trading as H. Thompson and Son, 99, Bland Street, Manchester; chemical merchant. November 29, 1926. (By consent.)

"INDUSPHALTE."

476,572. Class 4. Tar and Bitumen. Charles Edward Wight, 26, Cloth Market, Newcastle-on-Tyne; tar and bitumen compound manufacturer. January 11, 1927.

"GEBLERIT."

475,861. Class 1. Compounds for preventing corrosion on metals. Gebler-Werke Aktiengesellschaft (a Joint Stock Company organised under the laws of Germany), 22, Sidonienstrasse, Radebeul-Dresden, Germany; manufacturers. December 13, 1926.

"PROTION."

476,644. Class 1. Bituminous waterproofing compounds in the nature of paints. The Graphite Oils Co., Ltd., Victoria Street, Grimsby, Lincolnshire; manufacturers. January 13, 1927.

"NONOX."

474,755. Chemical substances used in the manufacture of india-rubber to prevent oxidation. Class 1. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester; manufacturers. November 10, 1926.

Opposition to the Registration of the following Trade Marks can be lodged up to April 2, 1927.

"HARCOL."

468,453. Class 1. Solvents for grease, natural fats and wax in cotton yarns, being chemical substances for use in manufacture. Harding Chemical Co., Ltd., New Thomas Street, Pendleton, Salford; chemical manufacturers. March 25, 1926. (To be Associated. Sect. 24.)

"HARCLENE."

471,228. (For particulars see No. 468,453.)

"VIAMULS."

576,213. Class 1. Paints, varnishes, and preservative coatings or dressings, included in Class 1, for wood, stonework, brickwork, and metal. Viamuls, Ltd., 21, Cockspur Street, London, S.W.1; manufacturers. December 28, 1926. (To be Associated. Sect. 24.)

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

CHEMICAL AND TANNING EXTRACTS.—A firm of agents established in Oslo desires to obtain the representation for Norway of manufacturers of salt cake, caustic soda, soda ash, bichromate of soda, bichromate of potash and tanning extracts. (Reference No. 190.)

CREOSOTE OIL.—The Lithuanian Railway Administration is calling for tenders, to be presented by March 10, for the supply of 1,400 tons of creosote oil for impregnating railway sleepers. (Reference B.X. 3275.)

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

PHILLI MIRANO, LTD., 39–49, Groton Road, Earlsfield, manufacturers of toilet preparations. (C.C., 5/3/27.) £14 14s. 10d. December 30.

TAYLOR, J. AND J. AND CO., 3–7, Seddon Street, Liverpool, varnish makers. (C.C., 5/3/27.) £68 2s. 10d. January 14.

Bills of Sale

BUIST, Walter Ferguson, 24, Townsend Avenue, Clubmoor, Liverpool, analytical chemist. (B.S., 5/3/27.) Filed February 28. £60.

TAYLOR, Martin Howard, 3 to 7, Seddon Street, Liverpool, paint manufacturer. (B.S., 5/3/27.) Filed February 28. £125.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an—followed by the date of the Summary, but such total may have been reduced.]*

CAWLEY (HUGH) AND CO., LTD., Salford, dyers and finishers. (M., 5/3/27.) Registered February 11, £5,000 debentures; general charge.

LIVERPOOL MEDICAL RESEARCH ORGANISATION. (M.,5/3/27.) Registered February 16, £7,000 mortgage to W. B. Bell, 38, Rodney Street, Liverpool, surg.; charged on 38, Rodney Street, Rodney House, and 47 and 49, Roscoe Street, Liverpool.

McBRIDE (ROBERT) AND CO., LTD., Eccles, dyers and bleachers. (M., 5/3/27.) Registered February 15, £3,000 debentures; general charge.

ORMSIDE SILICA WORKS, LTD., Redhill. (M., 5/3/27.) Registered February 9, £10,000 debentures; general charge (subject to prior charges). *£15,000. March 18, 1926.

London Gazette, &c.

Company Winding Up Voluntarily

HARTLEY SMITH, LTD. (C.W.U.V., 5/3/27.) By special resolution, February 4, confirmed February 25. N. R. Dickinson, chartered accountant, 260, Swan Arcade, Bradford, appointed liquidator.

Notice of Dividend

PAYNE, Ernest Edward Munro (described in the receiving order as Edward Ernest Munro Payne), "Red House," Narborough, Leicester, analytical chemist. First and final dividend, 10s. per £, payable March 1, Official Receiver's office, 1, Berridge Street, Leicester.

Receiverships

LLOYDS (PHOTOGRAPHIC MATERIALS), LTD. (R., 5/3/27.) P. S. Booth, of Kimberley House, Holborn Viaduct, E.C., was appointed receiver and manager on February 16, 1927, under powers contained in debentures dated June 15, and September 23, 1926.

HUNT (N.), LTD. (R., 5/3/27.) A. R. Round, A.C.A., of 65, Temple Row, Birmingham, was appointed Receiver on February 24, 1927, under powers contained in first mortgage debenture dated October 26, 1926.

New Companies Registered

G. W. HOPE AND CO., LTD., 248, Belgrave Road, Birmingham. Registered February 23. Nom. capital, £10,000 in 500 6 per cent. cumulative preference shares of £10 each, and 5,000 ordinary shares of £1 each. Analytical and consulting chemists and druggists, manufacturers of and dealers in chemical products, food chemicals, calcium acid phosphate and sodium acid pyro-phosphate and derivatives, egg products, malt and cod liver oil, essences, colourings and preservatives, etc.

HARTLEY SMITH (1927), LTD. Registered March 1. Nom. capital, £3,000 in £1 shares. Producers, storers, refiners, extractors, manufacturers and merchants of oil, grease, oil cake, soap, candles, artificial manures, fertilisers, cattle food, varnish, petroleum, petroleum products, petrol and other spirits, manufacturing chemists and druggists, etc. Directors: J. W. Shackleton, Tranmere Park, Guiseley, and W. H. Shackleton.

I.C.I. Headquarters

CONSIDERABLE impetus will be given to the trend of big business to the West-end of London when the big chemical merger takes up its quarters in Westminster. The pile-drivers are now busily preparing the foundations of the large building at Millbank that is to house one of the world's largest industrial undertakings. This building is to stand opposite the Victoria Tower Gardens, at the southern end of the Houses of Parliament, and will have a fine outlook over the river and Lambeth Palace. Part of the combine is already in occupation of King's Buildings, in Smith Square, while another subsidiary company is housed by the Transport and General Workers' Union at their fine headquarters in the same square.

Les Établissements Kuhlmann: 1825-1925

ETABLISSEMENTS Kuhlmann, the well-known French chemical manufacturers, who celebrated their centenary in 1925, have issued a magnificent commemoration volume. The volume is prefaced by a coloured portrait of the founder, Frédéric Kuhlmann (1803–1881). Various chapters contain descriptions of the history of the company; of the factories at Loos and elsewhere; of the destruction of the factories during the German occupation; of the fusion of the company with La Compagnie Nationale de Matières Colorantes; and of recent developments and extensions. The book is well produced and illustrated and contains much interesting information.

Society of Chemical Industry: London Section Meeting

THE annual meeting of the London Section of the Society of Chemical Industry will take place on May 2. The following members of the present committee retire, and are ineligible for re-election: *W. H. Coleman, W. Cullen, J. A. Reavell,* and W. G. Wagner. Nominations to fill these vacancies, each signed by not less than five members of the section, should be sent in so as to reach the hon. secretary not later than March 31.

Benn Brothers' Other Journals

THE CABINET MAKER.—Ideal Home Exhibition; Business Done at the British Industries Fair; Notes from the Home Journals; New Books; Rings and Knockouts at Auction Sales.

THE ELECTRICIAN.—"The Stability of Large Power Systems," by F. H. Clough (I.E.E. Discussion): Assisted Wiring Schemes; Annual Dinner of the Electrical Wholesalers' Federation.

THE FRUIT GROWER.—Empire Trade Number: British Fruit Calendar—All the Year Round Supply; "An Imperial Fruit Intelligence Service," by Sir William Hardy; "Overseas Transport of Fruit and Storage Problems," by Dr. Cyril West.

GARDENING ILLUSTRATED.—Spring Planting Number: Flowers of Spring at Vincent Square; Early Flowering Chrysanthemums; Selection of Sweet Peas; Border Flowers to Plant Now; Edinburgh Botanic Gardens, Illustrated.

THE GAS WORLD.—The Use of Coke for House Heating and for Steam Raising; Monthly By-Product Coking Section; Cartoon by Wallace Coop.

THE HARDWARE TRADE JOURNAL.—Census of Production; Preliminary Report on the Iron and Steel Trades; Gas Tube and Strip: Gas Council Approves Specification; West Bromwich and Its Industries; Ironmongers' Visits to the British Industries Fair.

THE TIMBER TRADES JOURNAL.—Passing of Property under "Uniform" Contract; Timber Trade Lecture: Norway, Sweden and Finland; Federated Home Grown Timber Merchants' Annual Luncheon.